TO DETERMINE THE PREVALENCE OF PERIODONTITIS, BACTERIAL VAGINOSIS IN WOMEN WITH PRE-TERM LABOUR AND THEIR CORRELATION WITH CRP[C-REACTIVE PROTEIN] LEVELS

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DECLARATION BY THE CANDIDATE

I hereby declare that the thesis entitled "**TO DETERMINE THE PREVALENCE OF PERIODONTITIS, BACTERIAL VAGINOSIS IN WOMEN WITH PRE-TERM LABOUR AND THEIR CORRELATION WITH CRP[C-REACTIVE PROTEIN] LEVELS**" submitted towards partial fulfillment of the requirements for the award of **MD in OBSTETRICS & GYNAECOLOGY** degree to BFUHS is a compilation of original work carried out by me under the supervision of **Dr. Shweta Gupta**, Professor, Department of Obstetrics & Gynaecology, **Dr. Namita Buddhiraja**, Professor & Head, Department of Dentistry and **Dr. Sunil Kumar Juneja**, Professor, Department of Obstetrics & Gynaecology. No part of this thesis has formed the basis for the award of any degree previously.

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Dedicated

To

my Teachers

&

parents

ABBREVIATIONS

BMI	Body mass index
BV	Bacterial vaginosis
BT	Bleeding Time
C.I.	Confidence interval
CT	Clotting time
CPITN	Community periodontal index of treatment needs
CRH	Corticotropin releasing hormone
CRP	c-reactive protein
DNA	Deoxyribonucleic acid
GIT	Gastrointestinal tract
Hb	Haemoglobin
HIV	Human immunodeficiency virus
HVS	High vaginal swab
IL	Interleukins
IPD	In patient department
LBW	Low birth weight
MMPs	Matrix metalloproteinases
NO	Nitric oxide
NST	Non stress test
OR	Odds ratio
PGs	Prostaglandins
PGE_2	Prostaglandin E_2
PID	Pelvic inflammatory disease
PTB	Pre-term birth
PTLBW	Pre-term low birth weight
p - value	Probability value
ROM	Rupture of membranes
SD	Standard Deviation
t	Student t test
TLC	Total leucocyte count
TN	Treatment needs
TNF-α	Tumor necrosis factor-alpha
VIP	Vasoactive intestinal polypeptide
WHO	World health organisation

KEYS TO MASTERCHART

c	closed
o	open
n	no
y	yes

ABSTRACT

Introduction: A birth is considered premature if the fetus is born before 37 weeks and after the period of viability. It represents a major public health problem because of associated perinatal morbidity and mortality. Infectious conditions like periodontitis and bacterial vaginosis can result in preterm labour. CRP is an acute phase reactant which may increase in these infectious conditions.

Aim of Study: To study the prevalence of periodontitis and bacterial vaginosis in women with preterm labour. To investigate whether CRP is the possible mediator of the association between periodontitis, bacterial vaginosis and preterm labour.

Materials & methods: This was a case-control, simple random clinical study, conducted in the Department of Obstetrics and Gynaecology at Dayanand Medical College & Hospital Ludhiana. Total of 200 women were enrolled. 100 pregnant women who presented with preterm labour were taken as cases (group A) and another 100 who presented with term labour were taken as controls (group B). Reports of high vaginal swabs and blood c-reactive protein were checked and dental examination was done using the CPITN index protocols. Reports of both the groups were compared on the basis of above mentioned parameters.

Results: The mean age of group A was 27.79 years and of group B was 28.49 years. Majority of women were primigravida, graduates, belonging to upper middle class and booked cases. The majority of patients in group A belonged to code 4 and from group B belonged to code 0 during dental examination. Group A showed more number of vaginal culture positive reports (48%) as compared to group B (18%). The mean CRP value of group A was 11.51 and of group B was 5.79. Comparison of haemoglobin and TLC values showed no significant difference between the groups.

Conclusion: It was observed that there is a significant association between periodontitis and bacterial vaginosis with increased CRP levels in preterm labour. Including dental screening for periodontitis, HVS for bacterial vaginosis and CRP sampling in antenatal period may help in decreasing the incidence of preterm labour if treated without delay.

Keywords: Pre-term labour, periodontitis, bacterial vaginosis, c-reactive protein levels.

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INTRODUCTION

Preterm birth complicates 12% of all births. A birth is termed premature if the fetus is born before 37 weeks and after the period of viability. Preterm labour and low birth weight represent major public health problems because of their association with increased morbidity and mortality, long-term disability and burden on the economy.

As far as survival, growth and healthy development of the child is concerned, the weight of the fetus is one of the most important factors.[1,2]

Preterm delivery is defined as any birth that occurs before the gestational period of 37 completed weeks ie, 259 days since the first day of a woman's last menstrual period.[3]

Preterm labour is defined as the starting of regular contractions of the uterus associated with progressive changes in the cervix after viability period and before 37 completed weeks of pregnancy.[4,5]

Based on the gestational age of the fetus, preterm birth is categorized as:

- extremely preterm - 24-- 28 weeks
- early preterm - 28+1–33+6 weeks
- late preterm - 34 to 36+6 weeks of gestation.[6]

Preterm infants have higher rates of respiratory distress, apnea, temperature instability, seizures, hypoglycemia, and feeding difficulties. Survivors after premature birth mostly suffer from neuro-developmental impairments like cerebral palsy, intellectual disability, sensory impairments and behavioral problems which include attention, visual processing, academics and executive function.[7]

Globally, prematurity is identified as a leading cause of deaths in children below the age of 5 years.[8]

There are many risk factors associated with preterm birth, some established risk factors include:[9,10]

- **Infections during pregnancy** - Inflammation has been involved in the mechanisms responsible for preterm and term parturition, as well as fetal injury. Out of all the suspected causes of preterm labor

and delivery, infection or inflammation is the only pathological process for which both a firm causal link with preterm birth has been established and a molecular pathophysiology is defined. Inflammation has also been implicated in the mechanism of spontaneous parturition at term. Most cases of histopathological inflammation and histological chorioamnionitis, both in preterm and term labour, are subclinical. The isolation of bacteria in the amniotic fluid, known as microbial invasion of the amniotic cavity, is a pathological finding; the frequency of which is dependent upon the clinical presentation and gestational age.[11]

- **Family, personal and previous history of preterm births**- preterm delivery is a risk factor for subsequent preterm birth.[12]
- **Vaginal bleeding during pregnancy**- vaginal bleeding leads to thrombin production, causing proteolytic cascade to activate, which leads to destruction of fetal membranes and finally premature rupture of membranes. Thrombin can stimulate uterine contractions and lead to premature labor without rupture of the membrane (ROM). Based on another theory, bleeding can be a sign of subclinical uterine infection which could stimulate the process of preterm labour.[13]
- **Chronic health conditions, such as diabetes mellitus**- Mechanisms that may contribute to preterm delivery in these conditions include hyperglycemia, lipotoxicity, insulin resistance and oxidative stress leading to endothelial dysfunction.[14]
- **Multiple pregnancies** – There is uterine overdistension in case of multiple pregnancies. This excessive stretch can lead to early activation of the fetoplacental endocrine cascade, resulting in preterm labour.[15]
- **Pre-eclampsia**- more concentration of pro-inflammatory substances, and fetal-free DNA in such patients can lead to preterm labour.[16]

- **Anatomical problems** like uterine anomalies, uterine septum, and short cervix.
- **Cervical incompetence**- mechanical competence of the cervix can be reduced by genetic mutations in components of collagen and elastic fibres or proteins required for their assembly.[17,18]
- **Short interpregnancy interval**- The control of parturition is normally mediated by a two-step process - activation and stimulation. Activation is defined as the upregulation of the expression of a range of contraction-associated proteins, such as G protein-coupled receptors, near term. Stimulation is defined as the process by which natural agonists for these receptors are released, such as prostaglandins, which leads to uterine contraction. Failure to allow the expression of contraction-associated proteins to return to prepregnancy levels may be the mechanism by which a short interpregnancy interval predisposes to preterm birth.[19]
- **Black races** are more prone although any exact mechanism is not identified behind this factor.
- **Extreme maternal age** (< 20 or >40 yrs of age)- Placenta previa, gestational diabetes, medical history, use of assisted reproduction technologies and occurrence of an invasive procedure were all more common in aged mothers. On the other hand, nulliparity, past drug use and smoking were more prevalent in younger mothers. All these factors lead to preterm labour.[20]
- **Smoking during pregnancy**- The suggested mechanisms for smoking causing preterm labour include nicotine-induced vasoconstriction, carbon monoxide–induced fetal hypoxia, cadmium disruption of calcium signaling, altered steroid hormone production, disruption of prostaglandin synthesis, and changed responses to oxytocin. [21]
- **Low BMI before pregnancy** [<19.8]- The association between maternal underweight and preterm birth may exist directly due to

the lack of nutrients or there is an indirect subtle effect of multiple other behavioral factors like smoking, poor diet and medical illness.[22]

Despite all these risk factors identification, it is estimated that in the case of 50% of premature births, we are not able to identify the etiology. This fact in itself justifies that further studies are needed to identify the causes and risk factors that increase the risk of preterm labour.[23,24]

There are many evidences that indicate that in some women maternal infection and inflammation of the lower and upper genital tract, as well as at sites distant from the pelvis play a major role in the etiology of preterm birth.[25,26]

One of these conditions is periodontitis which also contributes to the occurrence of preterm labour.[27]

PERIODONTITIS

It is an infection of the oral cavity caused by gram-negative anaerobic bacteria which results in the degradation of the bones and connective tissue which support the teeth. The destruction of these supporting structures involves both direct tissue damage caused by bacterial products and indirect damage caused by the endotoxins and cytokines which appear in the crevicular fluid as part of the host's immune response.[28]

While periodontitis affects up to 50% population, there is a relatively high incidence of periodontitis among pregnant women.[29]

The role of maternal periodontitis as a potential stressor having detrimental effects on pregnancy outcomes is a relatively new area of investigation.

Nevertheless, recent studies have demonstrated an association between maternal periodontitis and multiple adverse pregnancy outcomes, including preterm birth, low birth weight, fetal growth restriction, and perinatal mortality.[30]

Pathology

The mechanisms by which periodontitis and preterm birth are associated are not much clear. It has been assumed that in the presence of severe periodontitis in pregnant females, oral micro-organisms can disseminate hematogenously to target the placenta, membranes, and fetus.[31]

This bacterial challenge after spreading hematogenously may result in increased cytokine expression and thereby can precipitate preterm labor.

Haematogenous dissemination of inflammatory products like local inflammatory cytokine and mediators such as prostaglandins (PGE2) caused by endotoxin and lipopolysaccharide release from periodontitis related organisms could cause an increase in systemic inflammatory mediators.[32] The hematogenous spread of periodontitis related organisms may cause decidual and chorioamnionitis infections which also induce an inflammatory response.[33]

Given that many pregnant women experience gingivitis (a preventable and treatable condition), if not treated that could progress to periodontitis, research to determine if oral diseases are independent risk factors for pre-term and low birth weight babies is warranted.

Diagnosis

Diagnosis of periodontitis usually requires comprehensive periodontal examination including full mouth periodontal tissue probing and measurement of attachment levels.[34]

The Community Periodontal Index of Treatment Needs (CPITN) was proposed by Ainamo et al 1982 for the joint working committee of the World Health Organization (WHO) as a tool for the assessment of periodontal diseases and treatment needs in the epidemiologic survey.[35]

The CPITN records common treatable conditions like periodontal pockets, gingival inflammation, dental calculus, and other plaque retentive factors. CPITN probe is used to measure pocket depth & detect sub-gingival calculus.

TABLE 1: Codes and criteria and treatment needs[35].

CODES	CRITERIA	TREATMENT NEEDS	
CODE 0	No signs of disease (healthy periodontium)	TN0	No need for periodontal treatment
CODE 1	Gingival bleeding after gentle probing	TN1	Need for improving the personal oral hygiene of that individual
CODE 2	Presence of supra or subgingival calculus	TN 2a	Need for scaling , need for improving personal oral hygiene
CODE 3	Pathological pocket of 4-5 mm present	TN 2b	Scaling and root planning . need for improving personal oral hygiene
CODE 4	Pathological pocket of 6 mm or more present	TN 3	Complex treatment which could involve deep scaling, root planning & more complex surgical procedures

BACTERIAL VAGINOSIS

Bacterial vaginosis is a polymicrobial imbalance of genital tract flora that occurs in approximately 15% of pregnancies.[36]

Pathology

Bacterial vaginosis is associated with a decrease in the quantity and quality of lactobacilli which constitute normal flora of the vagina and an increase in pathogenic organisms which cause a foul-smelling vaginal discharge. Their ascending colonization through the cervix to the amniotic fluid, feto-maternal membranes, decidual tissue and placenta results in adverse pregnancy outcomes.[37-39]

Many of the substances produced by bacterial vaginosis-related organisms which include endotoxins and enzymes such as sialidase, collagenase, protease, elastase, phospholipase and mucinase, have been shown to cause tissue damage and release of pro-inflammatory cytokines and prostaglandins (IL1,6,8, PGE2, PGF2alpha).[40] Cytokines, as part of the pro-inflammatory response in women with infections of the genital tract, can also cause damage to the neurological and respiratory tissues of the fetus which further leads to leukomalacia, bronchopulmonary dysplasia, and cerebral palsy.[41-44]

In the case of women with bacterial vaginosis, there is a two-to-six-fold increase in the risk of preterm birth when we compare them to women with normal genital tract flora.[45]

C-REACTIVE PROTEIN [CRP]

CRP is a marker for inflammation and infection.[46] Since CRP is an acute phase reactant produced by the liver in response to diverse inflammatory stimuli cytokines, these pro-inflammatory cytokines stimulate the release of CRP into circulation from the liver, so it is used as an indicator for infection recognization.

In normal labor the release of prostaglandins occurs, which ripens the cervix, changes membrane structure and causes myometrial contractions and results in labour. Periodontitis and bacterial vaginosis are the

inflammatory conditions that cause a preterm rise in all these pro-inflammatory mediators which would result in premature initiation of labour leading to preterm birth.

There are evidences that support the link between microbiology of periodontitis, bacterial vaginosis and preterm labor, through polymerase chain reaction and microbial cultures.[40]

Periodontitis and bacterial vaginosis may be risk factors in their right or may be interrelated. We speculate on whether periodontitis is a marker for an immune hyper response to abnormal flora which in the oral cavity results in periodontitis and in the case of bacterial vaginosis might result in preterm labour.

By the time a woman is admitted in preterm labour, there may be irreversible changes in the uterine cervix and myometrium which render futile those attempts to reverse the process.[47] As a result, screening and interventions must be initiated in early pregnancy.

Screening of antenatal women in early pregnancy for periodontitis and bacterial vaginosis would lead to the management of the cases before the onset of preterm labour.

The correlation of CRP with periodontitis and bacterial vaginosis can aid in the diagnosis and follow-up if level is high.

Hence by conducting this study we could assess whether factors like periodontitis, bacterial vaginosis and increased CRP levels impose any risk of preterm labour and we could also assess any threat perception from such a relationship.

This will assist in the development of early preventive interventions and thus reducing the incidence of preterm labour with the resultant decrease in neonatal morbidity and mortality and a decreased burden on the healthcare economy.

AIMS AND OBJECTIVES

- To study the prevalence of periodontitis and bacterial vaginosis in women with preterm labour.
- To investigate whether CRP is the possible mediator of the association between periodontitis, bacterial vaginosis and preterm labour.

REVIEW OF LITERATURE

Preterm birth is the leading cause of neonatal mortality and morbidity and imposes an emotional and financial burden on families, society, and health care providers.[48]

Identifying women at high risk for preterm birth remains a major challenge for the health care system. Scoring systems based on patient socioeconomic status, obstetric history, medical history, and prenatal events in the current pregnancy have shown suboptimal correlation with subsequent preterm birth.[4,5] The incidence of preterm birth is approximately 12% worldwide.

MECHANISM OF UTERINE CONTRACTION DURING PREGNANCY AND LABOR

During pregnancy and labor, the myometrium undergoes several biochemical and molecular changes that include the conversion of the noncontractile uterine phenotype (resting) to a contractile uterine phenotype at the required gestational age.[49]

This process of uterine activity during pregnancy and labor consists of four recognized phases:

1. Quiescence [1st phase]
2. Activation [2nd phase]
3. Stimulation [3rd phase]
4. Involution [4th phase][50]

- During 1st phase or quiescence, there is increased inhibition of uterine activity by autocrine-paracrine signal transduction. This signal transduction is stimulated by pregnancy-promoting factors such as progesterone, relaxin, NO, VIP, CRH, and prostacyclin, which keep the uterus in the resting phase. Angiogenesis occurs during this phase to maintain fetal blood flow, fetal growth, and fetal nutrition. Changes in the production of these substances can lead to labor or preterm labour. [51]

- During the activation phase, progesterone levels decrease and the transition to estrogen and CRH dominance leads to an increase in the mechanical stretch. This increase in stretch leads to the activation of contraction-associated proteins such as connexin-43 and others, causing an influx of calcium ions into uterine myocytes. There is also hypersensitivity of the receptors to uterotonics, which trigger high-intensity and coordinated uterine contractions.[52]
- The stimulation phase is characterized by increased uterine tone stimulated by uterotonics such as prostaglandins, oxytocin, and CRH. There is also an increase in pro-inflammatory messengers such as IL -8, TNF-alpha, white cells such as monocytes and neutrophils, and prostaglandins, leading to uterine contractions, cervical remodeling, and ripening.[53]
- The involution phase is characterized by a rapid decrease in pregnancy-promoting factors such as progesterone and an increase in birth-promoting factors such as gap junctions, which produce changes similar to those seen in labour. After the placenta detaches, tissue remodeling then occurs, which is primarily due to oxytocin.[54]

ETIOLOGY AND PATHOPHYSIOLOGY OF PRETERM LABOR

In most cases of preterm labour, the cause remains unknown, although several mechanisms have been proposed for the occurrence of preterm labor.[55]

It should be noted that accurate prediction of preterm labour is extremely problematic due to limited knowledge and the multifactorial etiology involved in the pathogenesis of preterm labor.[56]

Clinical management of preterm birth is an extremely difficult situation, especially when uterine contractions occur with progressive cervical changes. The unpredictability of the clinical course of preterm labour is due to the unexplained pathophysiology of the condition.[57]

These probable causes lead to either suppression of the immune system response to infection, which in turn leads to activation of inflammatory pathways. There is also increased sympathetic nervous system activity and hypersensitivity to catecholamines, leading to fetal growth restriction. These pathological mechanisms combine to activate a biological cascade leading to the onset of preterm birth.[58-60]

Intrauterine infections as the main component of inflammatory stimuli cause increased infiltration of lymphocytes, monocytes, and neutrophils into fetal membranes. Infiltration of these substances into fetal membranes is recognized by fetal innate immune cells and pattern recognition receptors.[61]

Activation of these receptors leads to:

a.)increased gene expression for pro-inflammatory mediators and cytokines, which include IL -1 beta, TNF-alpha, IL -8, and IL -6).[62]

b.) Decrease in the expression of mediators that maintain the resting state, such as IL -4, IL -5, IL -10 and 1L-13.[63]

An increase in proinflammatory mediators leads to an increase in the production of :

- prostaglandins (PGE2 , PGF2)
- Matrix metalloproteinases (MMP- 1,2,3 etc.)
- Hyaluronidases

All these factors contribute to increased contractility of myometrial cells, premature rupture of membranes, cervical ripening and cervical dilation, which in turn leads to preterm labour.[64]

Periodontitis as a risk factor in preterm labour

Periodontitis is defined as an inflammatory condition of the supporting tissues of the teeth caused by specific microorganisms or groups of specific microorganisms, leading to progressive destruction of the periodontal ligament and alveolar bone with formation of periodontal pockets, gingival recession, or both.[65]

Some studies suggest that the bacteria that cause infection and inflammation in the gums can enter the bloodstream of pregnant women and attack the fetus, leading to preterm labour and low birth weight (PLBW) babies.[66]

In 2009, Alessandra Neves Guimaraes et al. conducted a study on maternal periodontitis and preterm birth and found that periodontitis was associated with preterm births.[67]

Satheeshmannen et al. conducted a study (2011) to investigate the association between maternal periodontitis and preterm birth or low birth weight and concluded that there was a clear association between periodontal health and duration of pregnancy; periodontitis may be a risk factor for preterm birth.[68]

Sindhu K. Srinivas and Samuel Parry conducted a study (2012) at the College of Pennsylvania in which they found that maternal periodontitis is a common condition whose association with adverse pregnancy outcomes such as preterm birth, preeclampsia, and low birth weight has been extensively studied. Hematogenous transport of bacteria and proinflammatory mediators from sites of periodontitis into the placenta, fetal membranes, and the amniotic cavity is thought to trigger pathologic and inflammatory processes leading to these adverse pregnancy outcomes.[69]

Monmeet Walia et al. conducted a similar study (2015) and concluded that periodontitis appears to be a potential risk factor for preterm birth.[70]

Dr. Yousef Khader et al, at the Department of Community Medicine, Jordan, conducted a meta-analysis (2015) based on two case-control studies and three prospective cohort studies and concluded that periodontitis in the pregnant mother significantly increases the risk of subsequent preterm birth or low birth weight.[71]

A 2016 systematic review by Teshome et al. concluded that there is an association between periodontitis and preterm births. [72]

L.A. Daalderop et al. conducted a study (2017) on periodontitis and pregnancy outcomes. This study highlights the fact that periodontitis is an important risk factor for several common adverse pregnancy outcomes.[73]

In the article published by Edwar J. Manrique-Corredor et al (2019), the results showed that pregnant mothers with periodontitis have twice the risk of preterm birth.[74]

Camila Barreto Barbieri et al, in a study (2020) on the relationship between periodontitis and pregnancy problems, found that elevated levels of cytokines produced by periodontitis cause the body to induce early or preterm labour. Current evidence suggests that women need dental interventions during pregnancy to control periodontitis, as these interventions serve to reduce preterm labour.[75]

Usin et al. investigated a similar relationship in a study and found that the presence of periodontal pathogens in the gingival pockets of pregnant women with different periodontal statuses was associated with low birth weight preterm births only in young mothers.[76]

Peace Uwambaye et al. conducted a study in 2021 at the College of Medicine and Health Sciences, Rwanda, in which they found that periodontitis can lead to a six-fold higher risk of preterm birth compared to women without periodontitis.[77]

Offenbacher et al. first reported a possible association between maternal periodontitis and the birth of a preterm infant, reporting that periodontitis during pregnancy can lead to a sevenfold higher risk of preterm birth.[31]

Lopez and colleagues examined the risk of preterm birth and low birth weight in women with periodontitis and found that pregnant women with periodontitis had a higher risk of delivering a preterm, low birth weight infant.[78]

Other studies have examined the association between preterm and low birth weight births and found that they were significantly associated with poor periodontal status; for example, a study conducted by Umoh and

colleagues in Nigeria found that periodontal treatment effectively prevented preterm and low birth weight births.[79]

Similarly, in Uganda, Wandera and colleagues found that mothers with periodontal problems and poor oral hygiene during pregnancy had a higher risk of preterm birth than mothers who did not have periodontitis during pregnancy.[80]

Muwazi in Uganda reported an association between gingival recession and preterm birth in his cross-sectional study.[81]

M. Radnai et al. conducted an intervention study at the Department of Prosthodontic Dentistry in Hungary, and the results showed that the incidence of preterm birth and low birth weight was significantly lower in the treatment group when compared with the untreated group.[82]

Orhun Dortbudak et al. conducted a study at the Faculty of Dentistry, College of Vienna, and concluded that pregnant women with elevated amniotic fluid levels of PGE2, IL -6, and IL -8 at 15-20 weeks of gestation and with periodontitis are at high risk for preterm delivery. The presence of all these inflammatory substances in women with periodontitis may trigger a primary host response in the chorioamnion leading to preterm birth.[83]

Sakeenabi Basha et al. conducted a similar study at the College of Dental Sciences in Karnataka, India. The results showed that the likelihood of preterm birth and low birth weight was significantly increased in pregnant women with periodontitis compared to pregnant women without periodontitis, providing additional evidence for the role of periodontitis as an etiologic factor in poor pregnancy outcomes.[84]

Amare Teshome and Asmare Yitayeh published an article after conducting a systematic review at the Department of Dentistry in Ethiopia and concluded that there is an association between periodontitis and preterm birth and low birth weight. Pregnant mothers with periodontitis are at high risk for preterm birth and low birth weight infants, independent of other confounding factors.[85]

Maria Dilma B. V. Piscoya et al. conducted a similar study at Hospital das Clínicas in Brazil, and the results showed that periodontitis is strongly associated with preterm birth, indicating the need for regular screening for periodontitis and its treatment during pregnancy.[86]

Bacterial vaginosis as a risk factor for preterm labor

Bacterial vaginosis (BV) is one of the most common vaginal diseases associated with changes in the vaginal microbiome. Bacterial vaginosis is characterized by a decrease in resident lactic acid-producing lactobacilli and an overgrowth of pathogenic anaerobic bacteria.

This condition is a major public health concern for women of childbearing age and their partners, as BV is associated with adverse reproductive health outcomes such as pelvic inflammatory disease, miscarriage, and preterm birth, and can also lead to an increased risk of human immunodeficiency virus (HIV) infection and transmission.[87-90]

Although BV is associated with several adverse reproductive health outcomes, including upper genital tract infections, pelvic inflammatory disease, endometrial inflammation, preterm birth, and low birth weight, many fundamental questions about the pathogenesis of BV remain unresolved.

BV is associated with a twofold increased risk of preterm birth, with the risk being greatest if delivered before 16 weeks of gestation. This may indicate a critical period during early pregnancy when organisms associated with bacterial vaginosis can gain access to the upper genital tract and cause spontaneous preterm birth later in pregnancy.[91]

The exact mechanism of bacterial vaginosis causing preterm labor is not known, but it appears that anaerobic vaginal flora such as Bacteroides, Gardnerella vaginalis, Mycoplasma hominis, and Peptostreptococcus replace aerobic lactobacilli in the vagina and alter the natural vaginal flora.[92-93]

The products of anaerobic bacteria stimulate the decidual response and cause preterm labour through an increase in cytokines, phospholipase A2, and prostaglandin release.[94-95]

Several studies have shown that vaginal anaerobic flora and bacterial vaginosis are associated with intrauterine infections, intrauterine fetal growth, premature rupture of membranes, spontaneous abortion, and preterm labour.[96]

Vida Modares Najed et al. conducted a study (2008) to determine the association between bacterial vaginosis and preterm labour. The results showed that in the study group, 25% of women with preterm labour had bacterial vaginosis, while in the control group, only 11.3% had symptoms of bacterial vaginosis. The study concluded that bacterial vaginosis can cause preterm labour, so screening women at high risk for bacterial vaginosis is strongly recommended. Since preterm labour is a major cause of health problems and neonatal mortality and morbidity rates are among the most important indices for comparing healthcare systems, bacterial vaginosis deserves more attention as one of the causative factors for preterm labour and delivery.[97]

In 2013, LinditaYzeiraj-Kalemaj et al. conducted a study in Albania on bacterial vaginosis, educational level of pregnant women, and preterm birth. The study showed a significant correlation between bacterial vaginosis and preterm birth. High-risk groups for preterm birth, such as pregnant women with bacterial vaginosis and low educational level, need to be monitored and treated with caution to avoid complications of preterm birth.[98]

Dr. Renujain et al. in a study (2016) investigated the role of bacterial vaginosis in preterm labour and found that bacterial vaginosis in pregnancy is associated with adverse pregnancy outcomes such as preterm labor, low birth weight, and puerperal sepsis. Therefore, screening for bacterial vaginosis is warranted in all pregnant women who complain of vaginal discharge and in all patients with preterm labor.[99]

Chembetei Kavitha Kiran et al conducted a study (2017) at Narayana Medical College, Nellore and concluded that among the multiple causes of perinatal mortality and morbidity in developed countries, preterm birth is the leading cause. The complications of preterm birth cause approximately 70% of neonatal deaths and half of all neurological morbidity. The presence of intrauterine infections is one of the important risk factors for preterm labour. Most of the studies on the detection of causes of preterm birth and labour focused on microbial infections of the amniotic cavity and found the common route of infection is ascending route. The study demonstrates a significant association of preterm labour with bacterial vaginosis. Therefore, screening for bacterial vaginosis as a routine during pregnancy and simultaneous treatment may reduce the risk of preterm labour. This will also go a long way in the prevention of neonatal complications due to prematurity.[100]

Masao Shimaoka et al. investigated (2019) an association between preterm labour and bacterial vaginosis with or without treatment in a retrospective study. The study showed that there were fewer cases of preterm labour in the treated group than in the untreated group.[101]

S. Guaschino et al. conducted a study on the etiology of preterm labour: bacterial vaginosis. The results of the treatment group with BV were highly variable, ranging from an 80% reduction to a twofold increase in preterm births. Thus, in the current clinical scenario, there is considerable controversy regarding the screening and treatment of bacterial vaginosis.[91]

WaseeqaNigeen et al studied the correlation of bacterial vaginosis with preterm labor at Government Medical College, Srinagar, and found that among all women enrolled 94 had bacterial vaginosis. The overall prevalence of bacterial vaginosis in both groups combined was 31.33%. It was 42% in cases and 26% in controls. So, the prevalence was more in women with preterm labour. Illiteracy is a risk factor that can be modified to bring down the incidence of bacterial vaginosis.[102]

Role of CRP [C-Reactive Protein]

C-reactive protein (CRP) is a marker of systemic inflammation and is primarily synthesized in hepatocytes of the liver in response to any infection and injury to the tissue.[103]

Maternal concentrations of C-Reactive Protein have been studied to diagnose subclinical infection in pregnant women who suffer from preterm labour and premature rupture of membranes.[104-105]

Hvilsom et al. did a study and reported a significant association of elevated serum CRP levels with a nearly two-fold increased risk of preterm delivery.[106]

Ghezzi et al. did a study and found no relation between circulating CRP levels and preterm birth. However, an observation was made that the median amniotic fluid CRP level is higher in women who delivered preterm compared with women who had a term delivery.[107]

Waranuch Pitiphat et al conducted a study at Khon Kaen University, Thailand, and concluded that very high levels of maternal plasma CRP in early pregnancy were associated with an increased risk of preterm delivery. Compared with women with normal CRP levels, those with elevated CRP levels (≥8 mg/liter) had more risk of preterm delivery. These findings suggest that inflammation, as represented by increased CRP levels, could lead to the physiologic changes that result in preterm labour.[108]

Christopher Pretorius et al in a study (2007) stated that spontaneous preterm labour leading to pre-term birth is a major cause of perinatal morbidity and mortality worldwide. The etiology of spontaneous preterm labour is multifactorial but there are enough evidences that infection is a causative factor in up to 40% of cases. Periodontitis and bacterial vaginosis may be risk factors in their own right or maybe inter-relative.[109]

Amanda et al in 2008[110] conducted a study in African American pregnant women and concluded that diseases like periodontitis were significantly associated with increased CRP levels.

P.R. Ganesh et al conducted a study (2015) at TN Government Dental College, Chennai on the association between periodontitis, prematurity, low birth weight, and CRP levels. The study concluded that there is a significant association between prematurity, periodontitis and increased CRP levels. As periodontitis is a treatable disease, prematurity can be prevented with early diagnosis.[2]

MATERIALS AND METHODS

This was a hospital-based patient-bound case-control, simple random clinical study that was conducted in the Department of Obstetrics and Gynaecology at Dayanand Medical College & Hospital Ludhiana (Punjab).

100 pregnant women enrolled who were attending the antenatal outpatient clinic or admitted to labour ward with labour pains at gestation in between 26-37 weeks and were labeled as cases. (Group A).

Another 100 pregnant women were enrolled who were attending the antenatal outpatient clinic or admitted to labour ward with labour pains at term i.e. after 37 completed weeks of gestation and were labeled as controls. (Group B).

Group A (cases group) – Antenatal females at 26-37 weeks of gestation presenting with OPD and IPD with a complaint of labour pains.

Group B (control group) –: Antenatal females with >37 weeks of gestation presenting in OPD and IPD with a complaint of labour pains.

Inclusion Criterion:

Primiparous/multiparous women who are at 26-37 weeks of gestation with pre-term labour (Cases).

Primiparous/ multiparous women who have completed 37 weeks of gestation (Controls).

Exclusion Criterion:

Women with genitourinary tract infections except for bacterial vaginosis.

Medical/surgical illnesses like hypertension, diabetes, pulmonary and renal disease, and GIT problems might predispose to preterm labour.

Women who had therapeutic induction of labour.

Women who are with multiple fetuses, women with h/o of PID, uterine malformations, uterine surgery, previous h/o of pre-term birth, chronic vaginal discharge, previous h/o dental infections, tooth extraction, and bleeding gums.

Study Sample: 100 cases, 100 controls = a total of 200 patients.

The study was performed on 100 pregnant women admitted to labour ward with preterm labour pains at 26-37 weeks of gestation (Group A) and the next 100 admitted women with term labour pains at >37 completed weeks (Group B), admitted to labour ward for delivery.

METHOD OF COLLECTION OF DATA

Written and informed consent was taken from all the subjects entering the study. A detailed history was taken and a thorough clinical examination was carried out. An obstetric examination was done that included per abdomen examination for labour assessment, pelvic examination for bishop scoring and pelvic assessment, per vaginal examination. NST recording for 20 mins on admission was done. During antenatal check-ups, all patients underwent routine antenatal scans according to their gestation.

For all women baseline investigations like:

• Blood group and Rh typing

• Hemoglobin %

• BT, CT

• Urine examination were done.

Women were subjected to the following investigations too:

1. Dental examination for periodontitis using CPITN (Community Periodontal Index of Treatment Needs) Index –

The advantages of this index are – simplicity, speed, and international uniformity.

The dentition is divided into 6 parts called sextants.

Each sextant is given a score and the highest score in each sextant is identified after examining all teeth.

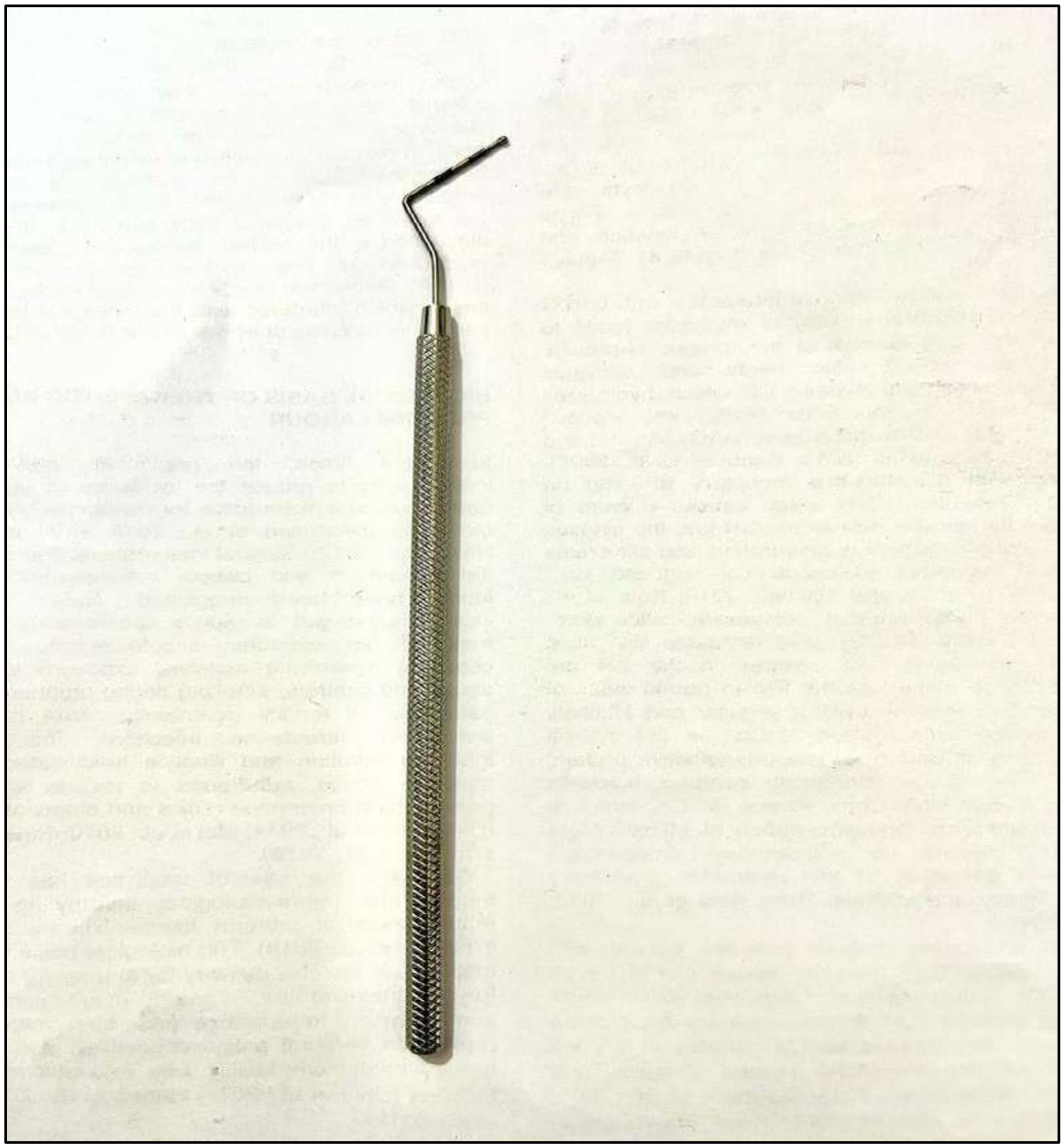
CPITN score is calculated then and coding is done accordingly.

The instruments used are –

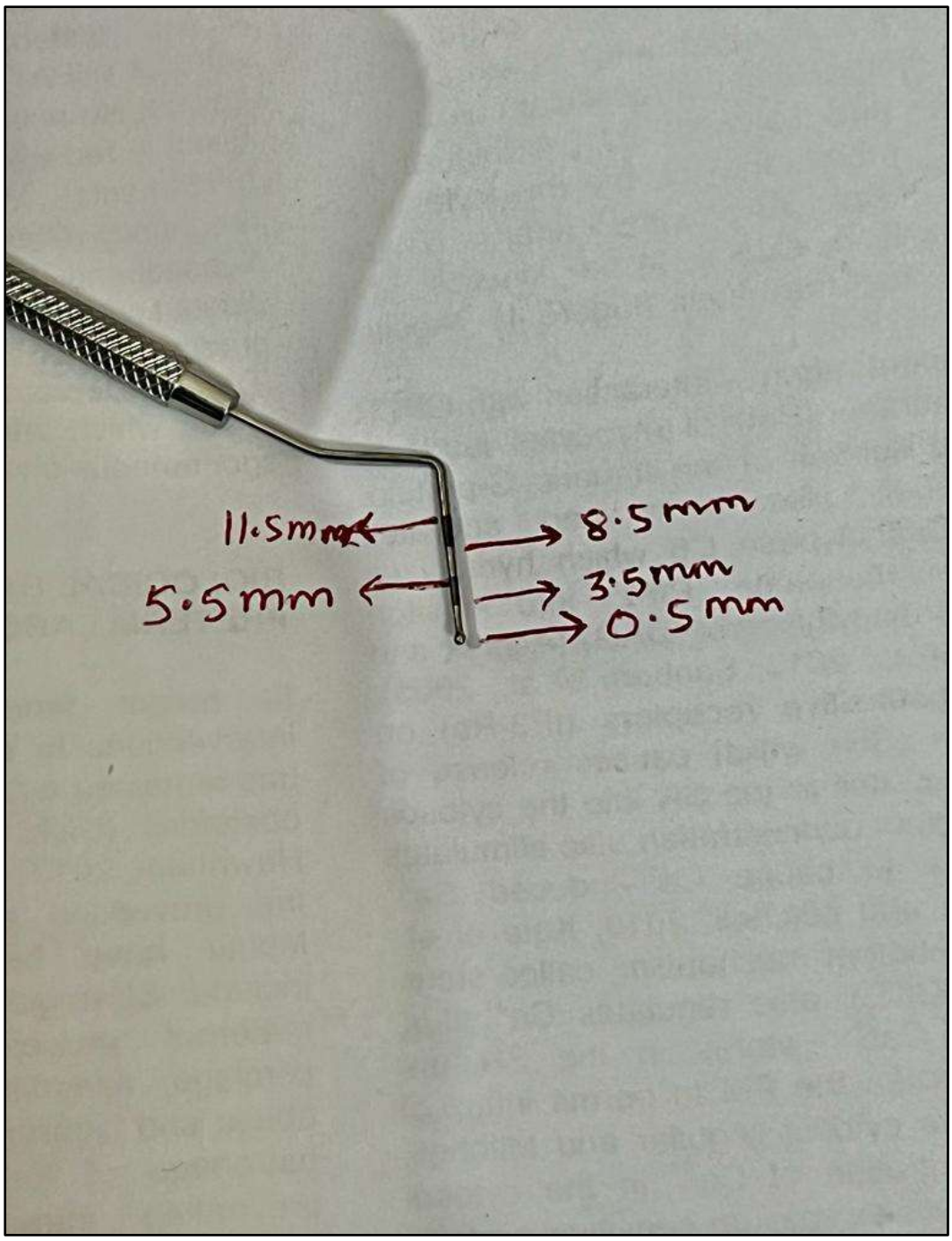
1. CPITN probe
2. Mouth mirror

CPITN probe—

- wt. 5 gms
- 0.5 mm ball at the tip and mm markings are at 3.5, 5.5, 8.5 and 11.5 and colour coding from 3.5 to 5.5 mm
- Probe is inserted between the tooth and gingiva, and the sulcus depth is noted against the color code or marking.
- A tooth should be probed in at least 6 points – mesio-buccal , mid-buccal , disto-buccal, mesio-lingual, mid-lingual , disto-lingual.



PICTURE 1: CPITN probe for dental examination.



PICTURE 2: Probe markings (in mm) for measurement of pocket depth.

Mouth mirror—

PICTURE 3: Mouth mirror for examination.

2. HVS high vaginal swab] - High vaginal swab of all the enrolled women were taken.

After retracting the vaginal walls with self-retaining cusco's speculum, a vaginal swab sample was taken from posterior fornix of vagina. After it, sample was sent to microbiology lab for culture to check the presence of growth of any micro-organisms.

3. Blood CRP [C-Reactive protein]

Reports of high vaginal swabs and blood c-reactive protein were checked and dental examination was done using the CPITN index protocols of all the subjects enrolled.

Reports of cases and control groups were compared for the presence of infection.

Study sample:

By using a previous study by Fouzia Tarannum et al,[111] it was observed that the incidence of low birth weight was 49.1% in group I and 70.6% in group B. Taking these values as reference, the minimum required sample size with 80% power of the study and 5% level of significance is 80 patients in each study group. To reduce the margin of error, total sample size is taken as 200 (100 subjects in each group).

The formula used in the situation is as under:

$$n = \frac{[Z_{1-\alpha/2}\sqrt{2\,P\,(1-P)} + Z_{1-\beta}.\sqrt{\{P1(1-P1) + P2\,(1-P2)\}}]^2}{(P1-P2)^2}$$

Where P= (P1+P2)/2

- Approximate value of efficacy/cure rate for standard treatment =P1
- Approximate value of efficacy/cure rate for other treatment = P2
- Effect size = (P2-P1)
- Level of significance (usually 5%)
- Zα = Value of standard normal variate corresponding to α level of significance (1.96) and Zβ = The standard normal deviate for desired power (0.842)

With these assumptions the sample size works out as 91. To allow for a possible dropout rate of 10%, a total of 100 patients were recruited.

STATISTICAL ANALYSIS:

Data was described in terms of range; mean ±standard deviation (± SD), median, frequencies (number of cases) and relative frequencies (percentages) as appropriate. A comparison of quantitative variables between the study groups was done using the Student t-test and Mann-Whitney U test for independent samples for parametric and nonparametric data respectively. For comparing categorical data, the Chisquare ($\chi 2$) test was performed and the exact test was used when the expected frequency is less than 5. A probability value (p-value) less than 0.05 was considered statistically significant. All statistical calculations were done using SPSS (Statistical Package for the Social Science) SPSS 21 version statistical program for Microsoft Windows.

OBSERVATION AND RESULTS

In our study, a total of 200 pregnant women were enrolled. Out of 200, 100 were taken as cases with gestation between 26-37 weeks and the other 100 were taken as controls with gestation ≥ 37weeks. Demographic and maternal parameters were recorded.

Demographic parameters

The following demographic parameters were noted:

1. Age
2. Education
3. Socio-economic class
4. Occupation
5. Gravidity
6. Antenatal care

1. Age (in years)

TABLE 2: Distribution of Women under study according to age.

		GROUP A (CASES)		GROUP B (CONTROLS)		Total	Chi-square value	p-value
		No. of cases	%age	No. of controls	%age			
Age group (in years)	< 25	37	37.0%	28	28.0%	65	2.246	0.325
	25-30	36	36.0%	45	45.0%	81		
	> 30	27	27.0%	27	27.0%	54		
Total		100	100.0%	100	100.0%	200		

Among these groups, 37 (37%) women from group A (cases) and 28 (28%) from group B (controls) belonged to the age group <25 yrs.

In group A (cases group), 36 (36%) of the patients belonged to the age group 25-30 years, and 27 (27%) of patients belonged to the age group of ≥ 30 yrs.

In group B (control group), 45 (45%) control subjects belonged to the age group of 25-30 years, and 27 (27%) controls belonged to the age group of ≥ 30 yrs of age group.

Overall both groups were comparable and there was statistically no significant difference between the two groups with a p-value of 0.325.

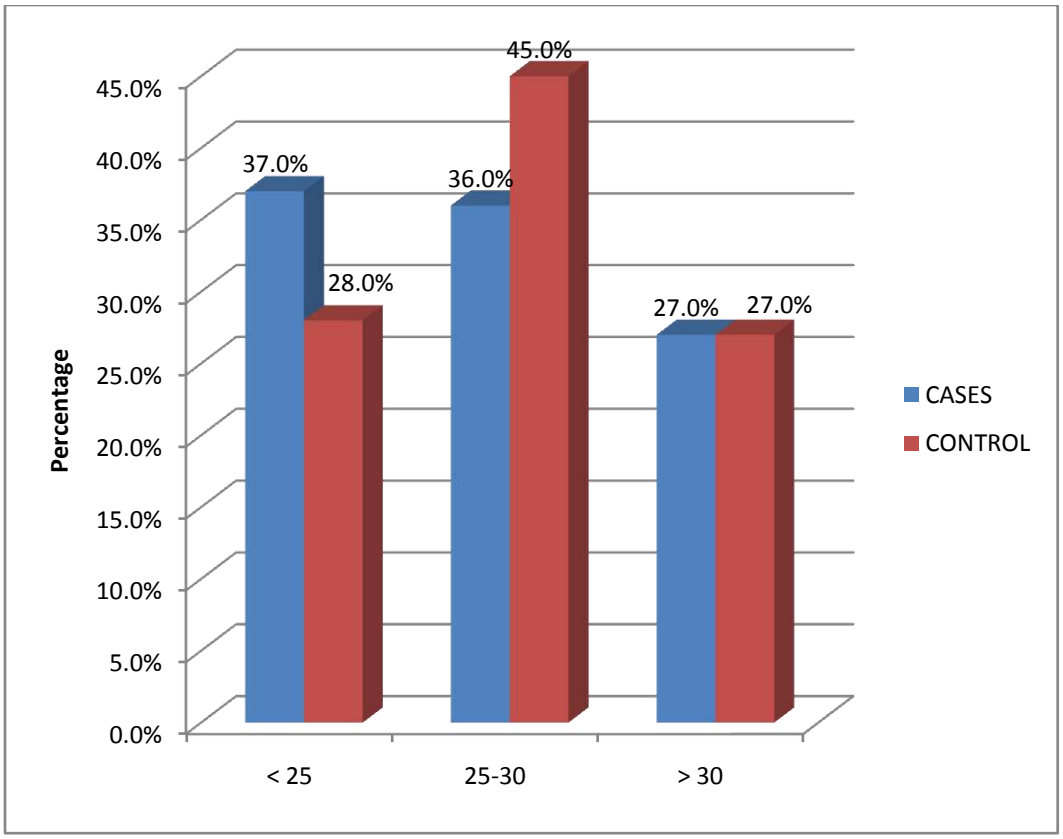


FIGURE 1: Distribution of women under study according to age.

TABLE 3: Mean age distribution of women under study between cases and controls.

	Group A (CASES)		Group B (CONTROLS)		t	p-value
	Mean	SD	Mean	SD		
AGE[yrs]	27.79	4.44	28.49	3.87	-1.188	0.236

In our study, the mean age of cases was 27.79 years compared to the mean age of 28.49 years in controls. No statistically significant difference was found between cases and controls. The age distribution in both groups was similar with a p-value of 0.236.

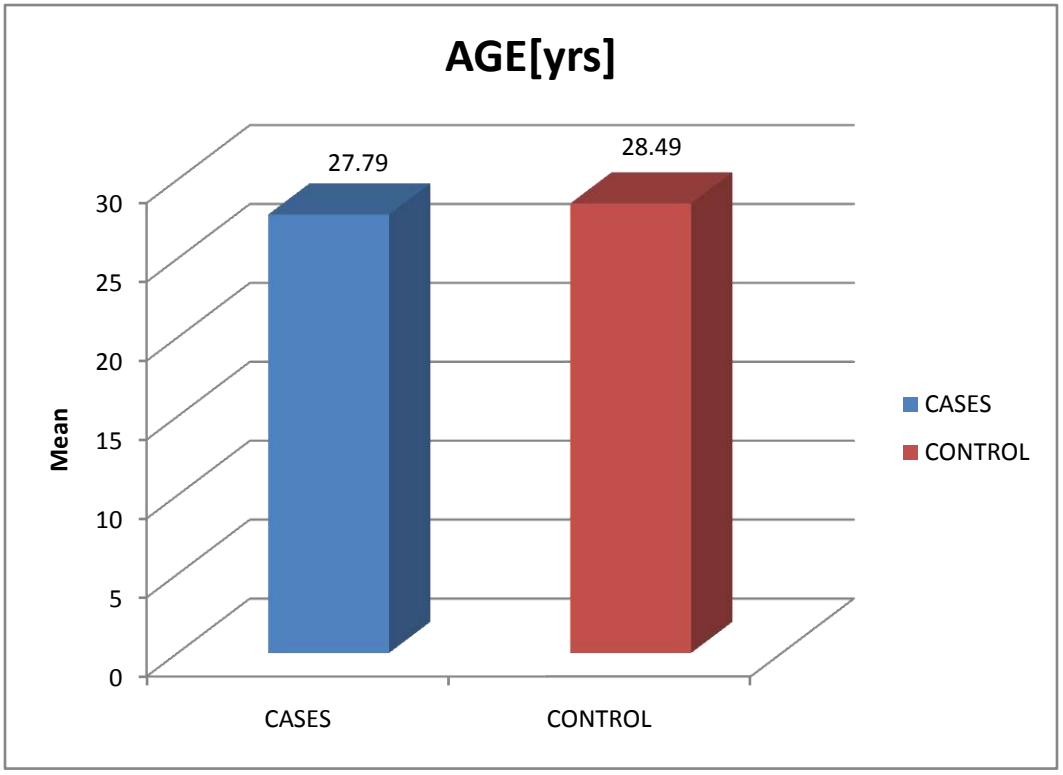


FIGURE 2: Mean age distribution of women under study between cases and controls.

2. EDUCATION

TABLE 4: Distribution of women under study according to education status.

		Group A (CASES)		Group B (CONTROLS)		Total	Chi-square value	p-value
		No. of cases	%age	No. of controls	%age			
EDUCATION	graduation	43	43.0%	44	44.0%	87	3.084	0.379
	post-graduation	16	16.0%	24	24.0%	40		
	primary	9	9.0%	9	9.0%	18		
	secondary	32	32.0%	23	23.0%	55		
Total		100	100.0%	100	100.0%	200		

In our study, out of 100 cases,43(43%) of women were graduates, 16(16%) were post graduates, 9(9%) had primary education and the remaining 32% had secondary level education.

Out of 100 control subjects, 44(44%) of women were graduates, 24 (24%) were post graduates, 9(9%) had a primary school degree and the rest 23(23%) had secondary level education.

There was statistically no significant difference noted among the cases and controls with a p-value of 0.379.

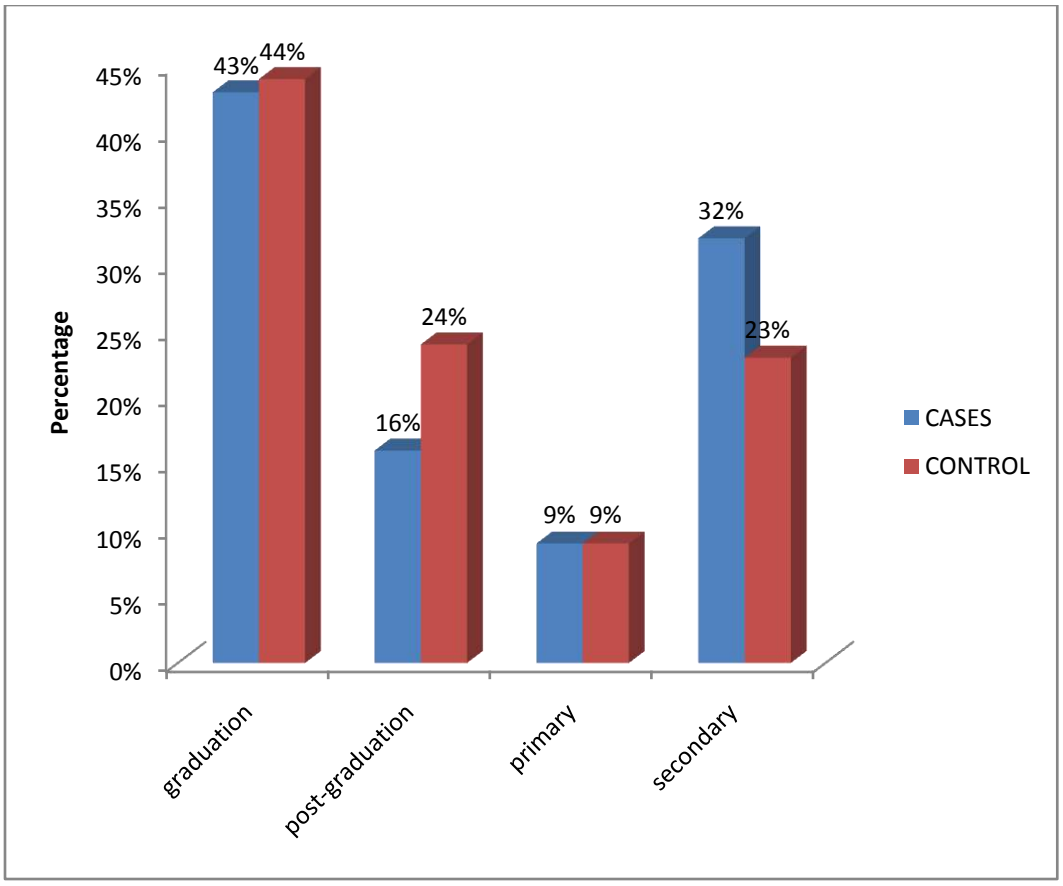


FIGURE 3: Distribution of women under study according to education status.

3. SOCIO-ECONOMIC CLASS

TABLE 5: Distribution of women under study according to socio-economic class.

200 women of both groups were classified into the following 5 groups according to the modified kuppuswamy scale:

Lower class(score: below 5)

Upper lower class (score: 5-10)

Lower middle class (score: 11-15)

Upper middle class (score: 16-25)

Upper class (score: 26-29)

		Group A (CASES)		Group B (CONTROLS)		Total	Chi-square value	p-value
		No. of cases	%age	No. of controls	%age			
SOCIO- ECONOMIC CLASS	lower class	20	20.0%	8	8.0%	28	5.980	0.014
	lower middle class	34	34.0%	24	24.0%	58	2.428	0.119
	upper class	12	12.0%	4	4.0%	16	4.348	0.037
	upper lower class	0	0.0%	2	2.0%	2	2.021	0.155
	upper middle class	34	34.0%	62	62.0%	96	15.705	0.001
Total		100	100.0%	100	100.0%	200	21.034	0.001

The majority of women from group A were from the upper middle class,34 (34%) and lower middle class, 34 (34%). Of the 100 control subjects, most women were upper middle class, 62 (62%) and 24(24%) were lower middle class.

The difference proved to be statistically insignificant for lower middle class women with a p-value of 0.119 and it was found to be statistically

significant in the case of upper middle class women with a p-value of 0.001.

Out of 100 cases, 20(20%) women belonged to the lower class, while from 100 controls, only 8(8%) women belonged to the lower class. The statistically significant difference was noted among the cases and controls with a p-value of 0.014.

12(12%) out of 100 cases, and 4(4%) out of 100 controls, belonged to the upper class. A statistically significant difference was found between the cases and controls with a p-value of 0.037.

None of the cases and 2(2%) out of 100 controls, belonged to the upper lower class. No statistically significant difference was noted among the groups with a p-value of 0.155.

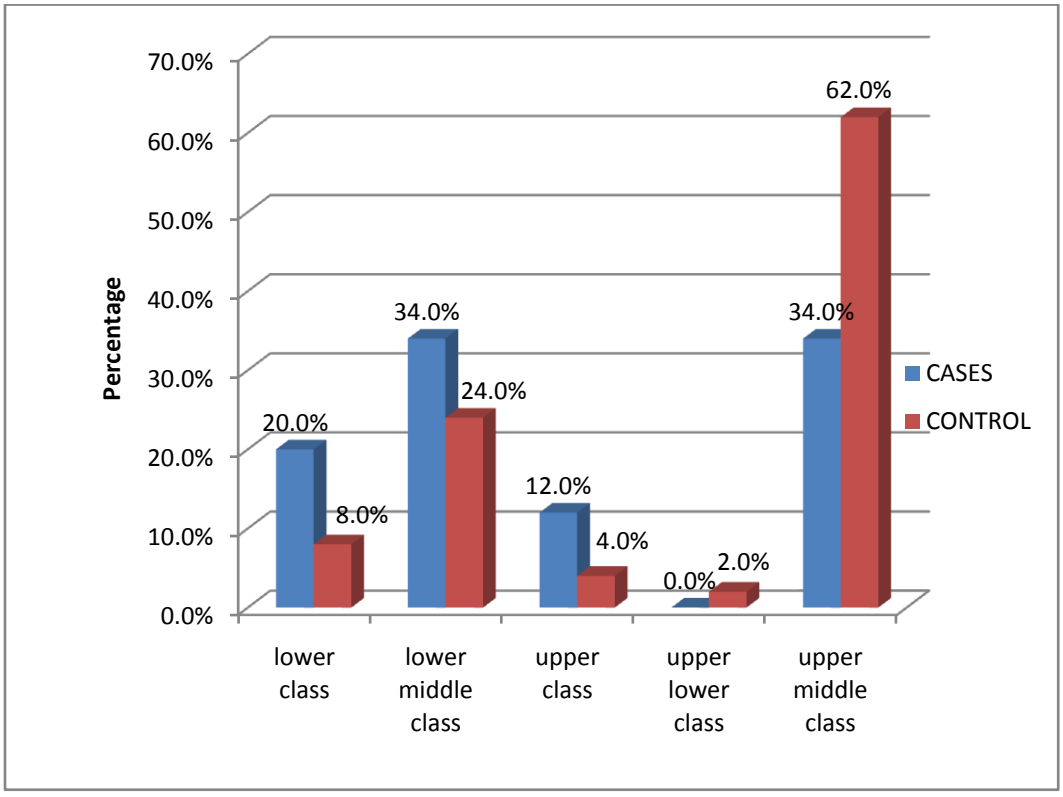


FIGURE 4: Distribution of women under study according to socio-economic class.

4. OCCUPATION

TABLE 6: Distribution of women under study according to their occupation.

		Group A (CASES)		Group B (CONTROLS)		Total	Chi-square value	p-value
		No. of cases	%age	No. of controls	%age			
OCCUPATION	Home makers	57	57.0%	47	47.0%	104	2.003	0.157
	Working	43	43.0%	53	53.0%	96		
Total		100	100.0%	100	100.0%	200		

In our study of 100 cases, 57 (57%) cases were homemakers and 43(43%) were working.

Out of 100 controls, 47 (47%) controls were homemakers and 53(53%) were working.

No statistically significant difference was found between cases and controls with a p-value of 0.157.

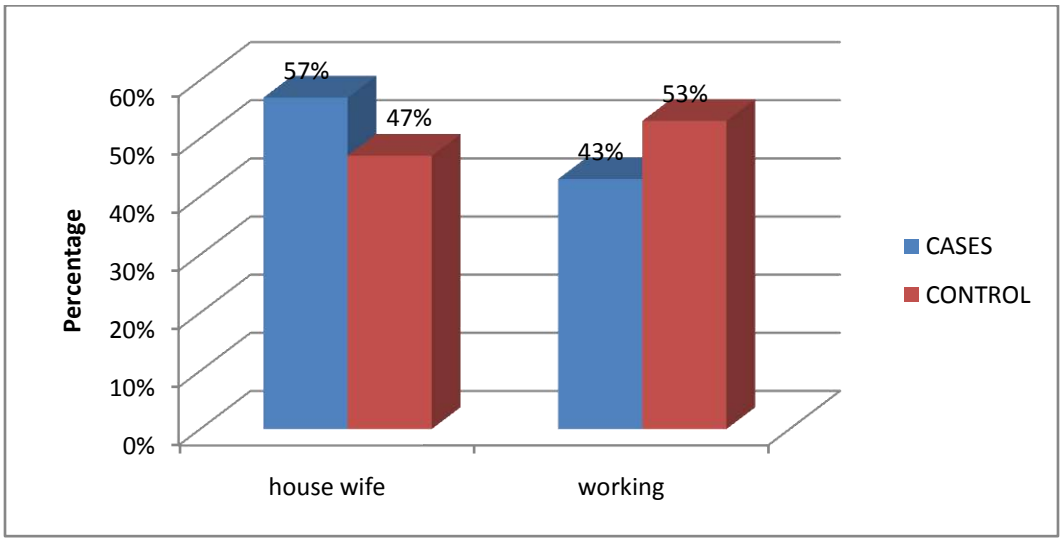


FIGURE 5: Distribution of women under study according to their occupation.

5. Gravidity

TABLE 7: Distribution of women under study according to gravidity.

		Group A(CASES)		Group B(CONTROLS)		Total	Chi-square value	p-value
		No. of cases	%age	No. of controls	%age			
OBSTETRIC HISTORY	multigravida	31	31.0%	44	44.0%	75	3.605	0.058
	primigravida	69	69.0%	56	56.0%	125		
Total		100	100.0%	100	100.0%	200		

In our cases group, 69 (69%) women were primigravida and 31(31%) women were multigravida whereas in control group, 56(56%) women were primigravida and 44(44%) women were multigravida. Thus, the distribution was similar in both groups.

There was no statistically significant difference in gravidity between the two groups with a p-value of 0.058.

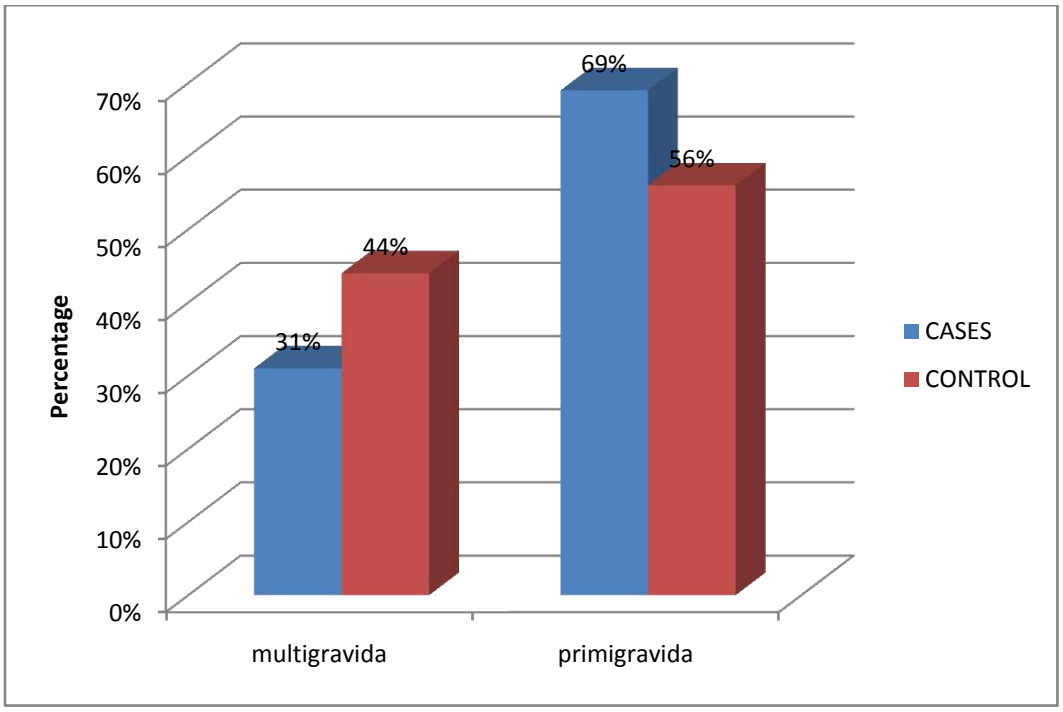


FIGURE 6: Distribution of women under study according to gravidity.

6. ANTENATAL CARE

TABLE 8: Distribution of women under study according to antenatal care.

		Group A (CASES)		Group B (CONTROLS)		Total	Chi-square value	p-value
		No. of cases	%age	No. of controls	%age			
ANTE-NATAL CARE	booked	73	73.0%	82	82.0%	155	2.323	0.128
	unbooked	27	27.0%	18	18.0%	45		
Total		100	100.0%	100	100.0%	200		

In our study, 73(73%) pregnancies in the case group and 82 (82%) pregnancies in the control group were booked cases.

27(27%) pregnancies in the case group and 18(18%) pregnancies in the control group were unbooked cases.

There was statistically no significant difference between the two groups with a p-value of 0.128.

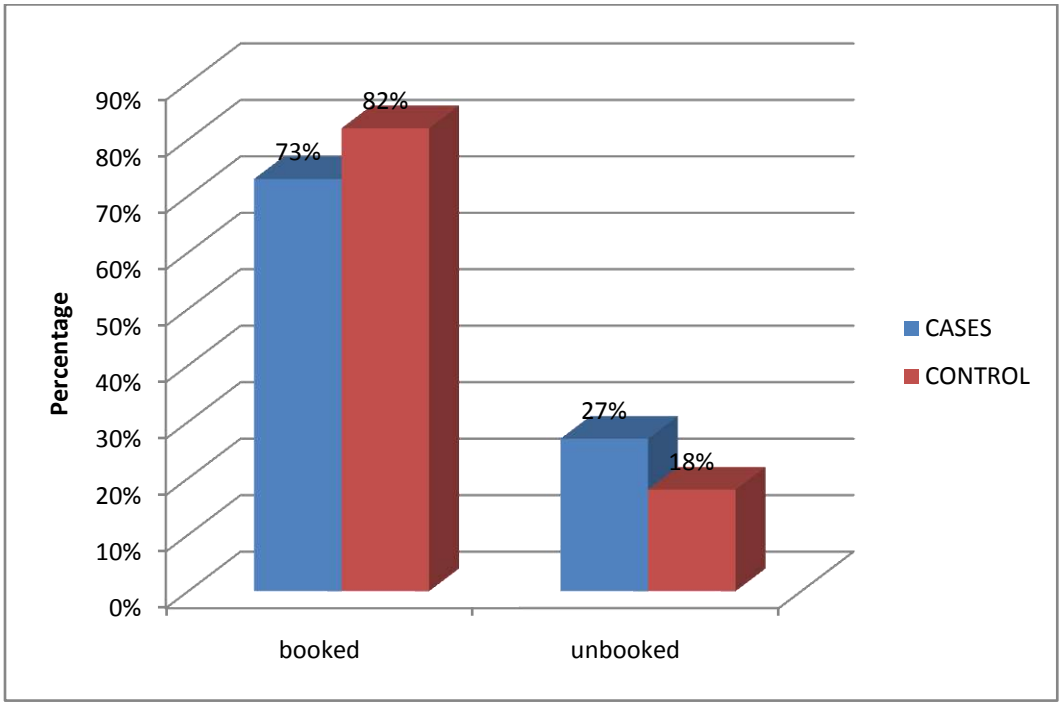


FIGURE 7: Distribution of women under study according to antenatal care.

MATERNAL PARAMETERS

The maternal parameters under study for all groups are:

1. CPITN index
2. Investigations-
    - HVS[High vaginal swab]
    - CRP[c-reactive protein]
    - Haemoglobin
    - TLC[Total leucocyte count]

1.CPITN INDEX

TABLE 9: Distribution of patients according to CPITN dental examination.

		Group A (CASES)		Group B (CONTROLS)		Total	Chi-square value	p-value
		No. of cases	%age	No. of controls	%age			
CPITN INDEX	code 0 (healthy)	20	20.00%	41	41.00%	61	14	0.01
	code 1(bleeding)	25	25.00%	25	25.00%	50		
	code 2 (calculus)	20	20.00%	14	14.00%	34		
	code 3 (pocket of 4-5mm depth)	20	20.00%	15	15.00%	35		
	code 4 (pocket of >6mm depth)	15	15.00%	5	5.00%	20		
Total		100	100.00%	100	100.00%	200		

All patients who participated in the study underwent a dental examination, using the CPITN index and coded according to their symptoms.

Of the 100 cases, 20 (20%) cases belonged to code 0, 25(25%) belonged to code 1 and this group comprises the majority of cases, 20 (20%) to code 2, 20 (20%) to code 3 and the remaining 15 cases (15%) belonged to code 4.

Of the 100 controls, 41 (41%) cases belonged to code 0 and this group comprises the majority of controls, 25(25%) belonged to code 1, 14 (14%) belonged to code 2, 15 (15%) belonged to code 3 and the remaining 5 cases (5%) belonged to code 4.

Overall both groups were comparable and the difference proved to be statistically significant with a p-value of 0.007.

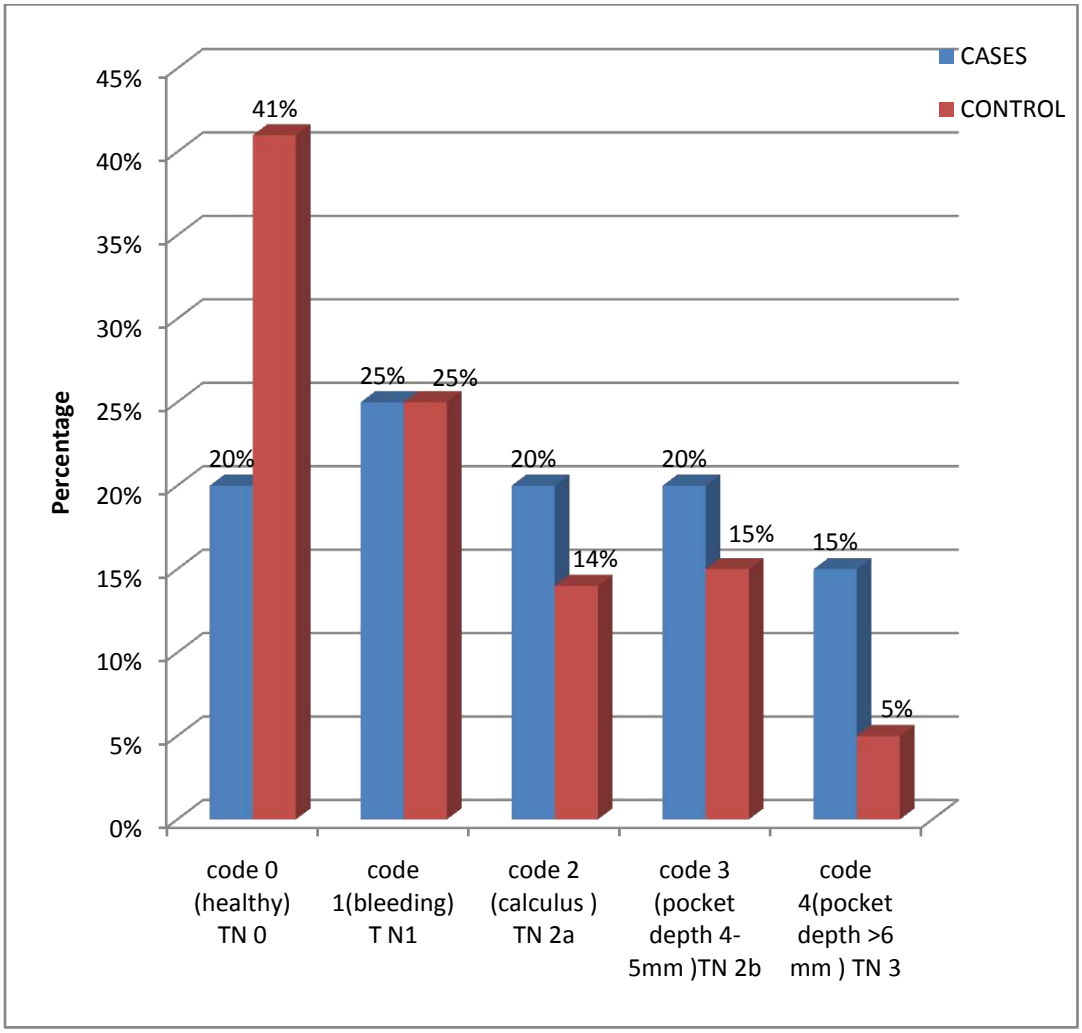


FIGURE 8: Distribution of patients according to CPITN dental examination.

2. INVESTIGATIONS

- **HVS (high vaginal swab)**

  TABLE 10: Distribution of patients according to their vaginal culture reports.

		Group A (CASES)		Group B (CONTROLS)		Total	Chi-square value	p-value
		No. of cases	%age	No. of controls	%age			
HVS (HIGH VAGINAL SWAB)	E. Faecalis	1	1.0%	0	0.0%	1	26.161	0.016
	E.coli	25	25.0%	11	11.0%	36		
	E.coli, E.faecalis	2	2.0%	0	0.0%	2		
	E.coli, K. pneumoniae	4	4.0%	2	2.0%	6		
	E.coli, P.aeruginosa	1	1.0%	0	0.0%	1		
	E.coli, P.mirabilis	1	1.0%	0	0.0%	1		
	E.coli, Staph aureus	1	1.0%	0	0.0%	1		
	E.coli, Staph hemolyticus	1	1.0%	0	0.0%	1		
	K.pneumoniae	4	4.0%	2	2.0%	6		
	K.pneumoniae, P. mirabilis	2	2.0%	1	1.0%	3		
	No growth	52	52.0%	82	82.0%	134		
	P.mirabilis	0	0.0%	1	1.0%	1		
	Proteus mirabilis	4	4.0%	0	0.0%	4		
	Staph. hemolyticus	2	2.0%	1	1.0%	3		
Total		100	100.0 %	100	100.0 %	200		

A high vaginal swab was collected from all participating women for culture and sent to the microbiology laboratory.

The swabs from 48(48%) women from group A and 18 (18%) women from group B showed the presence of various organisms.

52(52%) women from group A and 82(82%) women from group B showed no growth on cultures.

The majority of women from group B showed no growth of micro-organisms indicating sterile cultures.

Overall both groups were comparable and the difference proved to be statistically significant with a p-value of 0.01.

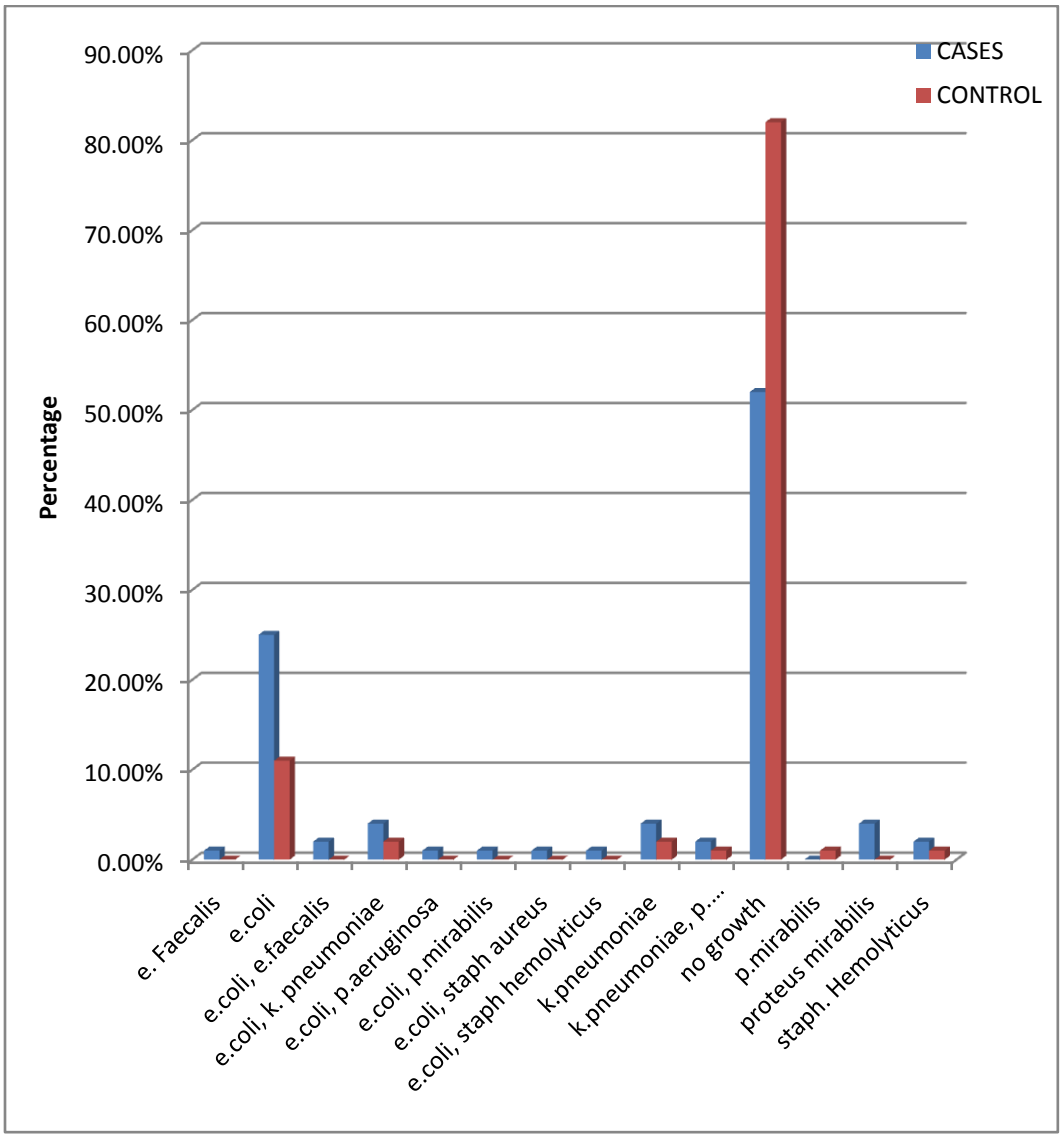


FIGURE 9: Distribution of patients according to their vaginal culture reports.

- **CRP(C-REACTIVE PROTEIN)**

TABLE 11: Distribution of patients according to their CRP levels.

	Group A (CASES)		Group B (CONTROLS)		Z	p-value
	Mean	SD	Mean	SD		
CRP(C-REACTIVE PROTEIN)[mg/dl]	11.51	14.23	5.79	5.13	3.784	0.001
FOLLOW-UP CRP LEVELS (IF HIGH)	15.94	14.24	10.65	4.53	0.725	0.476
CRP2	16.14	9.32	5.30	0.14	1.573	0.154
CRP3	16.40	.	.	.		

All patients who participated in the study were examined for their CRP levels. Blood samples were obtained from all women.

In our study, the mean CRP value of group A was 11.51 with a standard deviation of 14.23 compared to the mean CRP value of 5.79 in group B with a standard deviation of 5.13. A statistically significant difference was found between cases and controls with a p-value of 0.001.

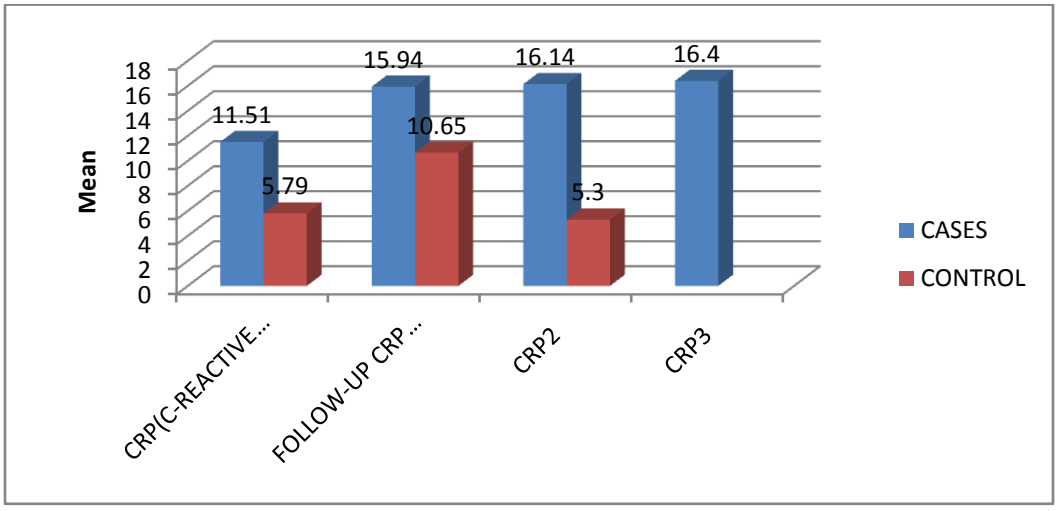


FIGURE 10: Distribution of patients according to their CRP levels.

- **HEAMOGLOBIN**

TABLE 12: Distribution of patients according to their haemogram values.

	Group A (CASES)		Group B (CONTROLS)		t	p-value
	Mean	SD	Mean	SD		
Hb Haemoglobin)	11.56	0.86	11.73	1.00	-1.280	0.202

WHO guidelines were followed for haemoglobin values.

According to WHO, anemia in pregnancy is characterized by hemoglobin levels below 11.0g/dL and can be divided into three levels of severity:

- mild anemia (Hb levels 9g/dl to 10.9g/dL),
- moderate anemia (Hb levels 7g/dl to 8.9g/dL),
- and severe anemia (Hb levels less than 7g/dL).[112]

Anemic patients were excluded from the study to avoid confounding.

Blood reports have shown that the mean haemoglobin value was 11.56 in group A and 11.73 in group B.

No statistically significant difference was found between the two groups with a p-value of 0.202.

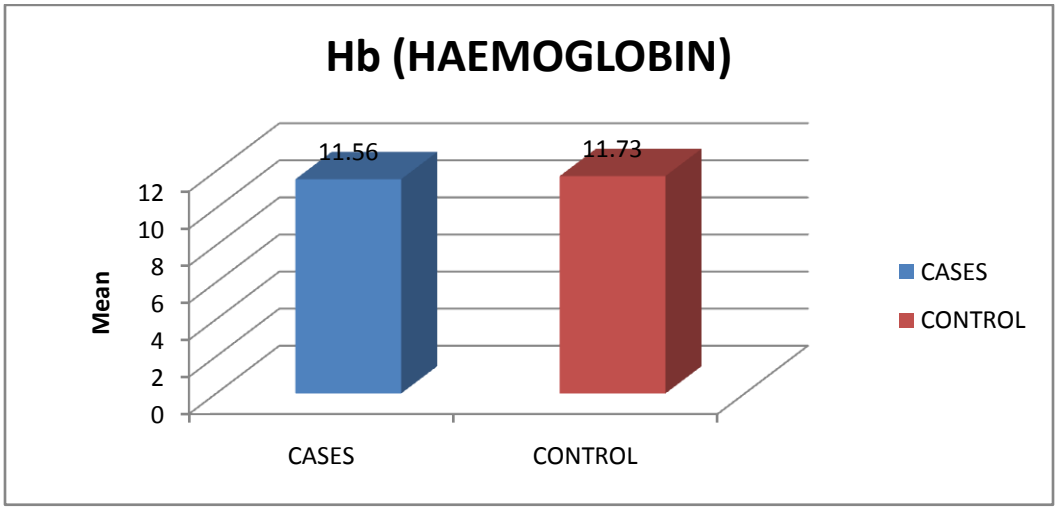


FIGURE 11: Distribution of patients according to their haemogram levels.

- **TLC (TOTAL LEUCOCYTE COUNT)**

TABLE 13: Distribution of patients according to their TLC values.

	Group A (CASES)		Group B (CONTROLS)		Z	p-value
	Mean	SD	Mean	SD		
TLC (TOTAL LEUCOCYTE COUNT)	8.15	2.02	7.62	1.96	1.894	0.060

Blood samples were taken from all patients to determine their TLC levels. Reports have shown that the mean TLC value of group A was 8.15 with a standard deviation of 2.02 and of group B was 7.62 with a standard deviation of 1.96.

Overall both groups were comparable and no statistically significant difference was found between the two groups with a p-value of 0.060.

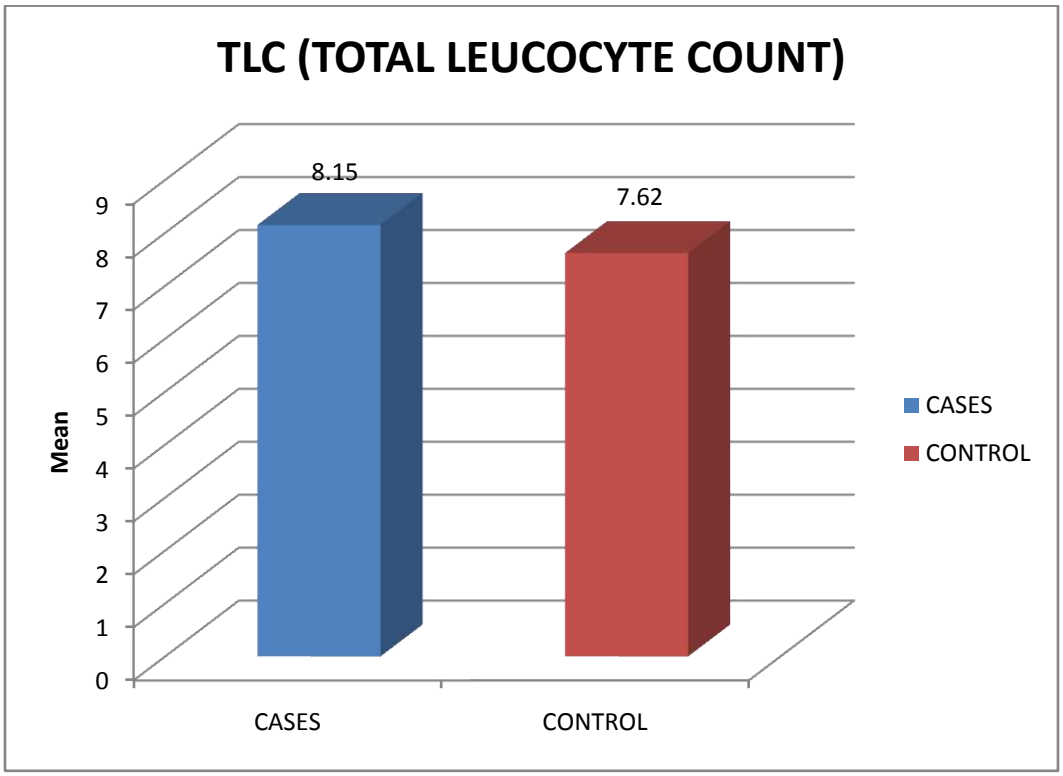


FIGURE 12: Distribution of patients according to their TLC levels.

DISCUSSION

A birth is termed preterm or premature when fetus is born before 37 weeks and after the period of viability. Many studies have been done in the context of preterm labour, prematurity, associated risk factors, and maternal and perinatal outcomes and have been explained extensively. In contrast, very few studies have been reported on periodontitis, bacterial vaginosis and their correlation with increased c-reactive protein levels. Screening for these infections in prenatal care and concomitant treatment of these infections, if present, and their effect on labour needs to be studied in more detail.

This study was conducted to investigate the prevalence of periodontitis and bacterial vaginosis in women with preterm labour and their correlation with C-reactive protein levels. A total of 200 pregnant women were included, out of which, 100 women with the diagnosis of preterm labour formed Group A (cases group) and 100 pregnant women with term labour formed Group B (control group).

DEMOGRAPHIC PARAMETERS

Our study included 200 patients, 100 of whom comprised group A (case group) and other 100 comprised group B (control group). When both the groups were compared based on their age, the majority of patients from group A belonged to the age group <25 years(37%), and the majority of patients from group B belonged to the age group of 25-30 years(45%). This corresponds to the average childbearing age of women in our country. In our study, we found that the mean maternal age of mothers in group A (case group) was 27.79 years, compared to 28.49 years in group B (control group) which was not statistically significant with a p-value of 0.236. Similar results were observed in 2017 by Alice Goisis et al at the Department of Social Policy, United Kingdom, who found that advanced maternal age was not associated with an increase in the likelihood of low birth weight and preterm birth, suggesting that there are unobserved

factors associated with the likelihood of older age birth, low birth weight and preterm birth.[113] According to several other studies, increased risk of preterm labour and prematurity is associated with extreme (both early and advanced) maternal ages because the risk of obstetric and non-obstetric complications increase with the extreme ages of the mother. In a study conducted by Giovana Esposito et al at the Department of Clinical Sciences and Community Health in Italy, it was found that both younger and older women had a higher risk of preterm birth.[114] No such observations could be made in our study as no statistically significant difference was found between the two groups.

In our study, the majority of patients were graduates from both groups, 43% from group A (case group) and 44% from group B (control group). From group A, 16% of patients and from group B, 24% of patients were post-graduates. From group A, 32% of patients and 23% of patients from group B had completed secondary school. From both the groups, 9% had a primary level education. Education is an indicator of people's awareness and also represents a change in their lifestyle. Our institute is a private tertiary care hospital and the majority of women attending the antenatal clinics are educated. No statistically significant difference was noted among both groups. A study conducted by Abdulrahman M. El-Sayed et al at Columbia University, New York, showed somewhat similar results to our study in which they found that there was no consensus on changes in the relationship between maternal education and preterm birth over time.[115] This is in contrast to other studies where this difference was found to be statistically significant. Anne-Marie Oftedal et al conducted a register-based cohort study at the Department of Global Public Health and Primary Care, Norway, whose results showed that low maternal education and single motherhood were associated with preterm birth. After adjustment for established risk factors, excess risks decreased but remained statistically significant. The relative risk for low education decreased from 1.50 to 1.36 and for single motherhood from 1.50 to 1.28.[116] Auger et al.,

demonstrated an increase in the absolute risk of preterm birth among more than 2 million live births in Quebec, Canada between 1981 and 2006 when maternal education was taken into an account.[117] A study by Thompson et al. among all singleton births in the Norwegian Medical Birth Register from 1980 to 1998 found that the maternal educational gap in preterm births widened between mothers with more than 12 years of formal education and those with less than 10 years.[118]

The majority of women in our study were from the upper middle class, 34.0% from group A and 62.0% from group B. The difference was found to be statistically significant among the upper-middle-class women with a p-value of 0.001. From group A, 34.0% of the women and from group B 24.0% of the women belonged to the lower middle class. The difference was not statistically significant in the case of lower-middle-class women with a p-value of 0.119. Out of 100 women in group A, 20% of women belonged to the lower class, while out of 100 women in group B, only 8.0% of women belonged to the lower class. A statistically significant difference was found between the cases and controls with a p-value of 0.014. From group A, 12.0% of the women and from group B 4% belonged to the upper class. There was a statistically significant difference noted among the cases and controls with a p-value of 0.037. None of the women in group A and 2% of women in group B belonged to the upper lower class. There was statistically no significant difference noted among the cases and controls with a p-value of 0.155.In support of our study, there is a study conducted by Lizbeth Burgos Ochoa et al at the Department of Obstetrics and Gynaecology, University Medical Centre Rotterdam, Netherlands where results showed that Women living in areas with persistently low socio-economic status or areas with a decline in socio-economic status have a higher risk of preterm birth than women living in the most advantaged areas.[119] Cubbin et al. and Magerison-Zilko et al. conducted a similar study and found that long-term neighborhood poverty

and increases in poverty were associated with higher odds of preterm birth and SGA.[120-121]

In our study, 43% of women in group A (cases group) and 53% of women in group B (controls group) were employed. More women in group B were employed but no statistically significant difference was found between the groups with a p-value of 0.157. Similarly, in another study (2020) conducted by Mariana Buen et al at the Department of Obstetrics and Gynecology, College of Campinas, Brazil it was concluded that women who exert themselves at work and home have a lower rate of spontaneous preterm birth. They compared the workload at the household and working hours at the workplace but the results have shown an insignificant p-value of 0.953 and 0.170 respectively. These factors remain to be evaluated in terms of well-being and perceptions of quality of life.[122] This is in contrast to a study conducted by Chenxi Cai et al in which they found that longer periods of working were associated with a 10 % increase in the odds of having a preterm birth.[123]

The majority of women from both groups were primigravida, with a predominance of group A (case group). In support of our study, a retrospective study (2020) was conducted by Bouchra Koullali et al. at the Department of Obstetrics and Gynaecology, University of Amsterdam, and they found that nulliparity (P_0) was independently associated with an overall increased risk of spontaneous preterm birth compared to women in their second pregnancy (P_1).[124] The results of the study were not significant. Ananth CV et al. and Berkowitz GS et al. also investigated the association between nulliparity and spontaneous preterm birth and found similar results supporting our study.[125-126] Other studies have not yet found a direct relationship between parity and preterm labour, but many studies show that earlier preterm birth is a risk factor for preterm birth and preterm labour in a subsequent pregnancy. T. Tingleff et al. conducted a study on the effects of preterm birth on subsequent pregnancies and

found a positive association. They found that a first history of preterm birth was an important risk factor for subsequent preterm birth. The risk of preterm birth was particularly high after an extremely or very early gestational age at first birth. It is important to modify prenatal care for women with a history of preterm birth.[127]

In our study, most patients were booked from both groups, 73% from group A and 83% from group B. There was no statistically significant difference between the two groups (p-value=0.128). This can be explained by the fact that our institute is a tertiary care private hospital and the percentage of unbooked patients remains very low throughout the year. After the diagnosis of pregnancy, the first prenatal visit (booking visit) should occur during the first trimester. A pregnant woman is considered "booked in" when she has attended at least three prenatal care visits, apart from the booking visit, and has received at least one tetanus vaccination. She is also considered "enrolled" if, in addition to the enrollment appointment, she attends at least two other appointments that are no more than two weeks before delivery.[128] Thus, our results were at odds with most studies whose results showed a significant difference. JesminPervin et al. conducted a population-based cohort study (2020) in the Maternal and Child Health Division, Bangladesh, and concluded that prenatal care visits were associated with a lower incidence of preterm birth.[129] Katrien Beeckman et al, in a prospective cohort study, examined the association between specific elements of prenatal care and risk of preterm birth compared with looking only at the number of visits and concluded that measuring the content and timing of prenatal care using the new prenatal care timing tool was a better assessment of the risk of preterm birth than assessing the number of prenatal care visits alone.[130]

MATERNAL PARAMETERS

In group A, 20% of the women belonged to code 0 and 25% of patients belonged to code 1. Code 0 signifies that they all had healthy teeth without

signs of gingival bleeding, calculus, and periodontal pockets and code 1 means that they had only mild gingival bleeding on probing and no obvious symptoms. In group B, 41% of patients belonged to code 0 with absolutely healthy teeth and 25% of women belonged to code 1 with mild gingival bleeding on probing. The majority of women from group B belonged to code 0, which means that the majority of controls had healthy teeth. In group A, 20% of the patients in group B,14% of the patients belonged to code 2, which means that supra- or subgingival calculus was detected on probing the teeth.In the case of group A, 20 % of patients and 15% of patients from group B belonged to code 3, which means a pathological pocket of 4-5 mm was detected between the tooth and gingiva during probing. Of the rest of the patients from both groups, 15 % of patients from group A and 5 % of patients from group B belonged to code 4 which signifies that a pathological pocket of 6 mm or more was detected between the tooth and gingiva during probing.

PICTURE 4: Diseased periodontium.

PICTURE 5: Measurement of pocket depth.

PICTURE 6: Determination of probing depth using CPITN Periodontal probe.

Related calculations were done according to the guidelines of the CPITN index, and the data obtained from both groups were compared and the results have shown that the difference was found to be statistically significant with a p-value of 0.007. So, in our study, as we found a significant difference among both groups, it is seen that periodontitis is more prevalent among group A, which included women with preterm labour. Similar to our study, there was a study conducted by Alessandra Neves Guimaraes et al (2009) and the results have shown that periodontitis is associated with premature and extremely premature birth with a significant p-value of 0.001.[67] Similarly, Fernanda Mafra Siqueira et al in a large study conducted in Brazil found that periodontitis is associated with an increased risk for preterm birth and low birth weight. A significant difference was observed in their study with a p-value of <0.001(OR of 5.94) and a p-value of <0.001(OR of 9.12) for preterm birth and low birth weight respectively, highlighting the importance of dental care during prenatal checkups.[131] In a study conducted by Lopez et al in Santiago, regarding the treatment of periodontitis during pregnancy, results have shown a significant reduction in preterm birth incidence in a treated group with a p-value of <0.001. (incidence of 1.84% in the treated vs 10.11% in the untreated group).[33] Yousef Khader et al conducted a study on the association of the risk of preterm labour with maternal periodontitis and the results of the study suggested that increased periodontitis severity appears to be a risk factor for increased odds of preterm labor.[132] One more study on periodontal health and adverse pregnancy outcomes by H Uslu Toygar et al stated that maternal periodontitis is a risk factor for adverse pregnancy outcomes. The results of this study showed an increase in the incidence of preterm birth as CPITN coding of the patients increases with a significant p-value of 0.001. (incidence of preterm birth was 10.5% in the case of the code 1 group, 12.7% in code 2 and code 3 groups, and was 26.8% in the code 4 group).[133] In another study, conducted by Aura Heimonen et al, an observation was made that oral

periodontitis is significantly associated with preterm birth. (p-value of 0.02).[134] However, no such association was demonstrated in some studies, a study conducted by E S Davenport et al at London University stated that there is no correlation between maternal periodontitis and preterm birth with an odds ratio of 0.83.[135] In a study conducted by D G Bassani et al in Brazil, Results do not supported the hypothesis of periodontal diseases and preterm labour [OR 0.92; 95% CI:0.54-1.57].[136] Most of the studies concluded that periodontitis is a potential risk for preterm labour. Our study also gave a similar conclusion as results have shown that women with diseased teeth are more in number in group A.

The high vaginal swab was taken of all enrolled women and processed for the presence of micro-organisms to check for bacterial vaginosis. From group A, 52% of women showed the presence of infection, and the rest 48 % of the women sample showed no growth. From group B, 82 % women sample showed no growth, and the rest 18 % showed the presence of various micro-organisms. So, in our study, we have found a statistically significant difference with a p-value of 0.01 between both groups. This finding was consistent with a study conducted by T. Suchetha Lakshmi et al in Telangana in which results have shown that the incidence of BV was higher among the study group (preterm labour,36%) compared to the control group (term labour) and was statistically significant ($p<0.05$). BV has significantly associated with 3.45 fold risk for preterm labor (OR – 3.45; C.I. 1.28-9.8), statistically significant when compared to controls.[137] The findings of our study are in agreement with a study conducted by Chembetei Kavitha Kiran et al on the prevalence of bacterial vaginosis in preterm and term labour, results showed 14 preterm with bacterial vaginosis out of 25 cases and only two terms with bacterial vaginosis out of 25 controls. Significantly more patients in the preterm labour group demonstrated culture swab positivity with pathogenic organisms than in the term labour group and were found statistically significant with a p-value of 0.048.[100] In a similar study conducted by Renu Jain et al in

Madhya Pradesh results have shown that in the study group(preterm) 38% of women, while in the control group, 16% of women had bacterial vaginosis and this difference came out to be statistically highly significant. ($p < .001$).[99] The findings of our study are in coherence with a study by Dr. BukkeSoujanya, et al in which it was seen that patients with vaginal discharge indicative of bacterial vaginosis were considerably higher in the preterm labour group than in the term labour group (28 percent vs. 4 percent, respectively; p-value of < 0.01.[138] McGregor et al. conducted a similar study and observed that individuals with bacterial vaginosis had a 2.6-fold greater risk of preterm labour than healthy controls.[45] After looking at the results of many studies, bacterial vaginosis seems to be a potential risk factor for preterm labour and neonatal morbidity. Results of our study have also shown that in group A, more women show growth on vaginal culture swabs as compared to women in group B. (p-value 0.01)

CRP(c-reactive protein) levels of all enrolled women were done. In our study, the mean CRP value of cases was 11.51 with a standard deviation of 14.23 compared to the mean CRP value of 5.79 in controls with a standard deviation of 5.13. There was a statistically significant difference noted among the cases and controls with a p-value of 0.001. Similar to our study, Hvilsom et al. reported a significant association of elevated serum CRP levels with a nearly twofold increased risk of delivery before 37 weeks gestation.[106] The findings of our study are consistent with one more study conducted by Mazor et al in which it was reported that mean CRP levels were higher in women delivering preterm compared to the women with term labour with a statistically significant difference with a p-value of 0.038.[139] Waranuch Pitiphat et al conducted a study at, Khon Kaen University, Thailand and concluded found that very high levels of maternal plasma CRP in early pregnancy were associated with an increased risk of preterm delivery. Compared with women with normal CRP levels, those with elevated CRP levels (≥8 mg/liter) had greater than twofold higher odds of preterm delivery. The association was stronger for

cases who experienced spontaneous preterm delivery versus indicated preterm delivery. These findings suggest that inflammation, as represented by elevated CRP levels, could lead to the physiologic changes that result in preterm delivery.[108] The findings of our study are in coherence with the study undertaken by Halder A et al,78 (31.2%) of 250 individuals tested positive for CRP, whereas 172 (68.8%) tested negative. Positive CRP levels were connected with preterm labour, with an odds ratio of 2.384%. (95 percent CI: 1.153-4.928 & p-value 0.01).[140] In another study by Ghezzi et al., no relation was found between circulating CRP levels and preterm delivery. However, they observed a higher median amniotic fluid CRP level in women who delivered preterm compared with women who delivered at term.[107] P.R. Ganesh et al conducted a study (2015) at TN Government Dental College, Chennai on the association between periodontitis, prematurity, low birth weight and CRP levels. The study was conducted for one year amongst the post-natal women who delivered an infant before 37 weeks gestation (study group) and after 37 weeks gestation (control group) selected on a 1:1 ratio. Both groups showed a significantly greater number of mothers with generalized chronic periodontitis in the case group than in the control group. The study concluded that there is a significant association between periodontitis and preterm labour and a significant correlation between increased CRP levels, increasing severity of periodontitis, and prematurity.[2]

All the patients were examined for their haemoglobin levels. As we have excluded anemic patients from our study, the difference was found to be statistically not significant with a p-value of 0.202. There are many studies in which results have shown that anemic women have more tendency to have preterm labor. Shoboo Rahmati et al conducted a study (2020) on the relationship between maternal anemia and duration of labour and concluded that maternal anemia during pregnancy can be considered a risk factor for premature birth.[141] Shweta Kumari et al conducted a similar study (2019) and concluded that anaemia in delivering women was

associated with an elevated risk of PTB and LBW and the risk increased with the severity of anemia in pregnant women.[142] So, we have excluded these women from our study to avoid confounding.

All the patients were examined for TLC levels. No statistically significant difference was noted among both groups with a p-value of 0.060. Fareha khatoon et al conducted a similar study at the Medical College of Uttar Pradesh, India. The study showed that the neutrophils were significantly elevated in pregnant women with preterm labour but this increase was not found to be significant when compared with a control group.[143]

SUMMARY AND CONCLUSION

This study was conducted on 200 pregnant women in the department of Obstetrics and Gynecology at Dayanand Medical College and Hospital, Ludhiana to study the prevalence of periodontitis and bacterial vaginosis in women with preterm labour and to investigate whether CRP is the possible mediator of the association between periodontitis, bacterial vaginosis and preterm labour.

- The mean age of both groups was comparable. The majority of the women in group A belonged to the age group of <25 years and in group B belonged to the age group of 25-29 years. The mean age of cases was 27.79 years compared to the mean age of 28.49 years in controls. In our study, no correlation between age and preterm labour could be found.
- The majority of the women in both groups were graduates. In our study, no correlation between education levels and preterm labour could be found.
- The majority of women in group A belonged to the upper middle class (62.0%) while in group B, the majority belonged to the lower middle class (34.0%) and upper middle class (34.0%). The difference in socio-economic class and gestational age was found to be statistically significant in the case of upper class, upper middle class and lower class.
- From group A, 57% women were homemakers while the rest 43% were working. From group B, 43% were homemakers and 57% were working. In our study, no significant correlation could be found for this parameter.
- The majority of the women were primigravida in both groups (69.0% in group A compared to 56.0% in group B) but it was not statistically significant. In our study, preterm labour had no relation with the parity of women.

- The majority of patients were booked in both groups (73 % in group A and 82 % in group B). The difference was not statistically significant, and no correlation was found in our study.
- The majority of patients in group A i.e. cases group belonged to code 4 during dental examination and majorty of patients in group B i.e. control group belonged to code 0. Code 0 means they all had healthy teeth without any evidence of bleeding. Group A women have more patients belonging to code 4 as compared to group B. The incidence of preterm labour was more in group A and the incidence of gingival bleeding, calculus, and gingival pockets was also more in group A. Overall both the groups were comparable and the difference was statistically significant between both groups.
- At the time of admission, a high vaginal swab of all patients was taken for the presence of bacterial vaginosis. From cases, 48% of cases showed the presence of various micro-organisms as compared to only 18% in controls with a significant p-value of 0.016. This implies that the presence of bacteria had a relationship with preterm labor in women.
- The mean CRP value of group A was 11.51 with a standard deviation of 14.23 compared to the mean CRP value of 5.79 in group B with a standard deviation of 5.13. CRP values are on the higher side in patients of group A implying that increased CRP levels indicate an infection that further leads to preterm labour.
- As we have excluded anemic patients from our study, no correlation was found in our study of haemoglobin levels and preterm labour.
- No correlation of TLC values with preterm labour was found in our study.

Based on all the observations, analyses and inferences, it has been observed that there is a significant association between periodontitis and bacterial vaginosis with increased CRP levels in pre-term labour. The

present study provides evidence to support the need for collaborative initiatives among healthcare providers in gynaecology and dentistry.

Including dental screening for periodontitis, HVS for bacterial vaginosis and CRP sampling in antenatal period may help in decreasing the incidence of preterm labour if treated simultaneously.

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CASES

Sr. No	MRD NO	NAME	AGE [yrs]	EDUCATION	SOCIO- ECONOMIC CLASS	OCCUPATION	OBSTETRIC H/O THE PATIENT							CHEIF COMPLAINTS									
							AGE OF MARRIAGE [yrs]	LMP	EDD	ANTE-NATAL CARE	GESTATIONAL AGE [weeks.days]	OBSTETRIC FORMULA	OBSTETRIC HISTORY	PAIN	DURATION {HRS}	INTENSITY	ONSET	TRIGGERING FACTORS			H/O ABORTION	BLEEDING GUMS	PRE-TERM LABOUR
																		COITUS	TRAUMA	TRAVEL			
1	1213805	RK	21	graduation	lower middle class	house wife	20	17-03-21	24-12-21	unbooked	36.1	G1	primigravida	yes	24	mild	gradual	n	n	n	n	n	n
2	1214501	SA	26	post-graduation	upper class	house wife	23	13-04-21	20-01-22	booked	32.3	G1	primigravida	yes	5	mild	gradual	n	n	n	n	n	n
3	1215076	HK	29	graduation	upper class	house wife	21	13-04-21	20-01-21	booked	32.6	G2P1L1	multigravida	yes	24	mild	gradual	n	n	n	n	n	n
4	1217674	K	30	graduation	upper middle class	working	24	29-03-21	05-01-22	booked	35.4	G2P1L1	multigravida	yes	3	mild	gradual	n	n	n	n	n	n
5	96048	P	27	secondary	lower middle class	house wife	21	17-04-21	22-01-22	unbooked	33.2	G3P2L2	multigravida	yes	3	mild	gradual	n	n	n	n	n	n
6	1108467	D	31	primary	lower middle class	house wife	25	07-05-21	11-02-22	booked	30.4	G2P1L1	multigravida	yes	5	mild	gradual	n	n	n	n	n	n
7	1222606	SG	30	graduation	lower middle class	working	25	25-04-21	30-01-22	booked	32.6	G2P1L1	multigravida	yes	26	mild	gradual	n	n	n	n	n	n
8	1222701	RB	35	post-graduation	upper middle class	working	29	07-04-21	14-01-22	booked	31	G2A1	primigravida	yes	8	mild	gradual	n	n	n	n	n	n
9	76493	PK	30	post-graduation	upper middle class	working	27	06-05-21	10-02-22	unbooked	31.4	G1	primigravida	yes	24	mild	gradual	n	n	n	n	n	n
10	124010	SD	23	secondary	lower middle class	house wife	22	07-05-21	11-02-22	unbooked	31.4	G1	primigravida	yes	16	mild	gradual	n	n	n	n	n	n
11	1182076	AR	24	secondary	lower middle class	house wife	23	03-05-21	07-02-22	booked	32.3	G1	primigravida	yes	6	mild	gradual	n	n	n	n	n	n
12	8293	AK	33	graduation	lower class	working	25	02-05-21	06-02-22	booked	32.4	G2P1L1	multigravida	yes	5	mild	gradual	n	n	n	n	n	n
13	1226414	PR	30	post-graduation	upper class	house wife	25	10-05-21	14-02-21	booked	32	G2P1L1	multigravida	yes	9	mild	gradual	n	n	n	n	n	n
14	164328	SR	21	primary	lower class	house wife	20	01-07-21	07-04-22	unbooked	28.6	G1	primigravida	yes	4	mild	gradual	n	n	n	n	n	n
15	1154359	KD	32	graduation	upper class	house wife	23	07-06-21	11-03-22	booked	33	G3P2L2	multigravida	yes	4	mild	gradual	n	n	n	n	n	n
16	198420	NK	25	secondary	lower middle class	house wife	21	22-06-21	29-03-22	unbooked	32.2	G1	primigravida	yes	4	mild	gradual	n	n	n	n	n	n
17	1121642	SR	27	secondary	lower class	house wife	22	13-07-21	19-04-22	booked	30.1	G2A1	primigravida	yes	6	mild	gradual	n	n	n	n	n	n
18	138421	SK	24	graduation	lower class	working	22	13-07-21	19-04-22	booked	30.1	G1	primigravida	yes	7	mild	gradual	n	n	n	n	n	n
19	17246	SD	24	secondary	upper middle class	working	22	04-07-21	10-04-22	booked	29.6	G2A1	primigravida	yes	8	mild	gradual	n	n	n	n	n	n
20	345861	NJ	31	graduation	upper class	house wife	29	25-04-21	30-01-22	booked	32.6	G1	primigravida	yes	5	mild	gradual	n	n	n	n	n	n
21	46434	RR	25	secondary	lower middle class	working	24	19-01-22	26-10-22	booked	32	G1	primigravida	yes	6	mild	gradual	n	n	n	n	n	n
22	750483	RK	22	secondary	lower class	working	21	12-08-21	19-05-22	unbooked	33.1	G1	primigravida	yes	5	mild	gradual	n	n	n	n	n	n
23	1269753	MK	35	secondary	upper middle class	house wife	25	25-10-21	01-08-22	booked	31.3	G4P1L1A2	multigravida	yes	3	mild	gradual	n	n	n	n	n	n
24	1383275	VK	32	secondary	lower middle class	working	26	06-05-21	10-02-22	booked	31.4	G2P1L1	multigravida	yes	2	mild	gradual	n	n	n	n	n	n
25	1380465	AK	27	secondary	lower middle class	house wife	21	20-01-22	27-10-22	booked	34.5	G2P1L0	multigravida	yes	5	mild	gradual	n	n	n	n	n	n
26	1281028	GK	28	post-graduation	upper middle class	working	26	19-08-21	26-05-22	booked	32.2	G1	primigravida	yes	7	mild	gradual	n	n	n	n	n	n
27	124177	SS	23	post-graduation	upper class	working	22	25-04-21	30-01-22	unbooked	32.6	G1	primigravida	yes	10	mild	gradual	n	n	n	n	n	n
28	154231	R	24	graduation	lower middle class	house wife	22	16-02-22	23-11-22	booked	30.4	G1	primigravida	yes	12	mild	gradual	n	n	n	n	n	n
29	134280	SK	24	post-graduation	upper middle class	house wife	22	29-01-22	05-11-22	booked	30.4	G1	primigravida	yes	14	mild	gradual	n	n	n	n	n	n
30	146008	RD	20	secondary	lower class	house wife	20	28-01-22	04-11-22	unbooked	30.2	G1	primigravida	yes	12	mild	gradual	n	n	n	n	n	n
31	1367704	JK	20	graduation	lower middle class	house wife	16	11-12-21	17-09-22	unbooked	36.3	G2P1L1	multigravida	yes	8	mild	gradual	n	n	n	n	n	n
32	139684	KT	26	graduation	upper middle class	house wife	26	19-08-21	26-05-22	booked	32.2	G1	primigravida	yes	10	mild	gradual	n	n	n	n	n	n
33	97552	S	28	graduation	upper middle class	working	26	27-01-22	03-11-22	booked	32.2	G1	primigravida	yes	12	mild	gradual	n	n	n	n	n	n
34	146003	SK	23	secondary	upper class	house wife	22	30-01-21	06-11-21	booked	30.4	G1	primigravida	yes	10	mild	gradual	n	n	n	n	n	n
35	936489	KK	22	secondary	lower middle class	house wife	21	17-07-21	23-04-22	unbooked	32.2	G1	primigravida	yes	8	mild	gradual	n	n	n	n	n	n
36	1381480	SS	28	graduation	lower middle class	house wife	24	11-06-21	18-03-22	unbooked	31.5	G1	primigravida	yes	6	mild	gradual	n	n	n	n	n	n
37	146003	HR	29	post-graduation	upper middle class	working	25	18-02-22	25-11-22	booked	29.5	G1	primigravida	yes	8	mild	gradual	n	n	n	n	n	n
38	1368497	S	29	secondary	lower middle class	house wife	28	24-12-21	30-09-22	booked	35.2	G1	primigravida	yes	10	mild	gradual	n	n	n	n	n	n
39	1382225	D	28	graduation	upper middle class	working	26	29-01-22	05-11-22	booked	33.2	G1	primigravida	yes	8	mild	gradual	n	n	n	n	n	n
40	1382215	RD	28	graduation	lower class	house wife	26	17-02-22	24-11-22	booked	30.4	G1	primigravida	yes	6	mild	gradual	n	n	n	n	n	n
41	1381816	N	24	graduation	upper class	house wife	22	03-01-22	10-10-22	unbooked	36.5	G1	primigravida	yes	4	mild	gradual	n	n	n	n	n	n
42	464384	N	23	secondary	lower middle class	house wife	22	27-01-22	03-11-22	unbooked	30.5	G1	primigravida	yes	2	mild	gradual	n	n	n	n	n	n
43	1379381	KK	28	secondary	lower middle class	house wife	24	13-01-22	20-10-22	booked	34.6	G2P1L1	multigravida	yes	1	mild	gradual	n	n	n	n	n	n
44	1365196	AK	31	graduation	upper middle class	house wife	30	10-01-22	17-10-22	booked	35.4	G1	primigravida	yes	6	mild	gradual	n	n	n	n	n	n
45	468347	SK	21	secondary	lower class	house wife	20	29-01-22	05-11-21	booked	30.4	G1	primigravida	yes	7	mild	gradual	n	n	n	n	n	n
46	1382217	TG	30	graduation	lower middle class	house wife	27	21-02-22	28-09-22	booked	31.4	G1	primigravida	yes	8	mild	gradual	n	n	n	n	n	n
47	113028	HG	27	graduation	upper middle class	house wife	25	29-01-22	05-11-22	booked	32.4	G1	primigravida	yes	10	mild	gradual	n	n	n	n	n	n
48	1170070	IM	31	graduation	lower middle class	house wife	22	16-01-22	08-10-22	unbooked	34.3	G4P1L1A2	multigravida	yes	12	mild	gradual	n	n	n	n	n	n
49	282082	S	31	graduation	lower middle class	house wife	29	16-02-22	23-11-22	booked	30	G2A1	primigravida	yes	8	mild	gradual	n	n	n	n	n	n
50	1379901	LR	22	secondary	lower class	working	19	02-02-22	09-11-22	booked	32	G2P1L1	multigravida	yes	6	mild	gradual	n	n	n	n	n	n
51	1240227	JK	37	graduation	upper class	working	31	12-05-21	30-2-2021	booked	36.6	G2P1L1	multigravida	yes	7	-	gradual	n	n	n	n	n	n
52	1269859	HK	36	graduation	lower class	house wife	28	03-02-22	10-11-22	booked	33	G2P1L1	multigravida	yes	24	-	gradual	n	n	n	n	n	n
53	554005	MY	30	graduation	upper middle class	working	28	22-01-22	27-10-22	unbooked	34.5	G2P1L1	multigravida	yes	24	-	gradual	n	n	n	n	n	n
54	1387814	KG	36	post-graduation	lower middle class	working	30	03-03-22	10-12-22	booked	29.5	G2P1L1	multigravida	yes	24	-	gradual	n	n	n	n	n	n
55	1382217	TR	22	primary	lower middle class	housewife	20	05-02-22	12-11-22	unbooked	33.5	G1	primigravida	yes	24	-	gradual	n	n	n	n	n	n
56	1258057	KK	24	secondary	lower middle class	housewife	22	19-01-22	26-10-22	booked	36.2	G1	primigravida	yes	16	-	gradual	n	n	n	n	n	n
57	680575	SD	38	graduation	upper middle class	working	28	28-01-22	02-11-22	booked	35	G2P1L1	multigravida	yes	4	-	gradual	n	n	n	n	n	n
58	1388543	KK	28	post-graduation	upper middle class	working	22	01-03-22	06-12-22	booked	30.2	G1	primigravida	yes	4	-	gradual	n	n	n	n	n	n
59	1391344	VN	29	primary	upper middle class	housewife	27	19-02-22	26-11-22	booked	30.6	G1	primigravida	yes	4	-	gradual	n	n	n	n	n	n
60	1391981	MJ	32	secondary	upper class	housewife	25	27-01-22	03-11-22	booked	35.1	G2P1L1	multigravida	yes	3	-	gradual	n	n	n	n	n	n
61	1390480	DP	36	graduation	lower middle class	working	30	01-03-22	06-12-22	booked	30.2	G2P1L1	multigravida	yes	3	-	gradual	n	n	n	n	n	n
62	132915	PB	23	graduation	upper middle class	working	21	10-02-22	17-11-22	booked	33.1	G1	primigravida	yes	2	-	gradual	n	n	n	n	n	n
63	1252379	GG	32	graduation	upper middle class	working	23	15-02-22	22-11-22	booked	32.3	G2P1L1	multigravida	yes	5	-	gradual	n	n	n	n	n	n

Sr. No	MRD NO	PAST HISTORY													GENERAL EXAMINATION	PULSE [bpm]	BLOOD PRESSURE		ORO-DENTAL EXAMINATION		ABDOMINAL EXAMINATION			PI E
		TOOTHACHE	PRE-TERM BIRTH	TOOTH EXTRACTION	CERVICAL SURGERY	ANAEMIA	D N C	DIABETES	PID	HEART DISEASE	CHRONIC VAGINAL DISCHARGE	HYPERTENSION	PIH	OTHER	TEMPERATURE [°F]		SBP [mmHg]	DBP [mmHg]	CPITN INDEX The ten specified 17 16 11 26 27 47 46 31 36 37 Examined six	Surfaces examined are	Fundal Height [weeks]	Intensity	Duration [secs]	Cervix
1	1213805	n	n	n	n	n	n	n	n	n	n	n	n	n	98.6	98	120	80	code 0	6	34-36	mild	40	normal
2	1214501	n	n	n	n	n	n	n	n	n	n	n	n	n	97	100	110	70	code 2	6	30-32	mild	40	normal
3	1215076	n	n	n	n	n	n	n	n	n	n	n	n	n	98	99	120	70	code 3	6	32-34	mild	30	normal
4	1217674	n	n	n	n	n	n	n	n	n	n	n	n	n	98	96	120	70	code 0	6	34-36	mild	35	normal
5	96048	n	n	n	n	n	n	n	n	n	n	n	n	n	98	98	130	70	code 2	6	32-34	mild	35	normal
6	1108467	n	n	n	n	n	n	n	n	n	n	n	n	n	98.6	97	120	70	code 2	6	30-32	mild	40	normal
7	1222606	n	n	n	n	n	n	n	n	n	n	n	n	n	97.8	88	110	70	code 0	6	32-34	moderate	35	normal
8	1222701	n	n	n	n	n	n	n	n	n	n	n	n	n	98.6	100	130	80	code 3	6	30-32	moderate	40	normal
9	76493	n	n	n	n	n	n	n	n	n	n	n	n	n	98.6	99	110	80	code 4	6	30-32	mild	45	normal
10	124010	n	n	n	n	n	n	n	n	n	n	n	n	n	97.8	96	120	70	code 1	6	30-32	moderate	35	normal
11	1182076	n	n	n	n	n	n	n	n	n	n	n	n	n	98	88	120	70	code 3	6	30-32	mild	40	normal
12	8293	n	n	n	n	n	n	n	n	n	n	n	n	n	97	70	120	80	code 2	6	32-34	moderate	35	normal
13	1226414	n	n	n	n	n	n	n	n	n	n	n	n	n	98	80	118	78	code 3	6	30-32	moderate	40	normal
14	164328	n	n	n	n	n	n	n	n	n	n	n	n	n	98.6	88	120	76	code 0	6	28-30	moderate	40	normal
15	1154359	n	n	n	n	n	n	n	n	n	n	n	n	n	97.4	78	110	82	code 0	6	32-34	mild	40	normal
16	198420	n	n	n	n	n	n	n	n	n	n	n	n	n	97.2	76	120	74	code 4	6	30-32	mild	40	normal
17	1121642	n	n	n	n	n	n	n	n	n	n	n	n	n	98	78	120	80	code 1	6	28-30	mild	40	normal
18	138421	n	n	n	n	n	n	n	n	n	n	n	n	n	97	90	110	88	code 1	6	28-30	moderate	40	normal
19	17246	n	n	n	n	n	n	n	n	n	n	n	n	n	98.6	88	120	80	code 0	6	28-30	moderate	35	normal
20	345861	n	n	n	n	n	n	n	n	n	n	n	n	n	98	82	110	82	code 3	6	30-32	mild	35	normal
21	46434	n	n	n	n	n	n	n	n	n	n	n	n	n	97	88	120	84	code 4	6	30-32	moderate	35	normal
22	750483	n	n	n	n	n	n	n	n	n	n	n	n	n	96	90	120	80	code 2	6	32-34	mild	35	normal
23	1269753	n	n	n	n	n	n	n	n	n	n	n	n	n	98	92	110	80	code 2	6	30-32	mild	35	normal
24	1383275	n	n	n	n	n	n	n	n	n	n	n	n	n	98	94	110	70	code 0	6	30-32	moderate	40	normal
25	1380465	n	n	n	n	n	n	n	n	n	n	n	n	n	98.4	96	120	70	code 3	6	34-36	mild	40	normal
26	1281028	n	n	n	n	n	n	n	n	n	n	n	n	n	98.2	88	120	70	code 4	6	32-34	moderate	40	normal
27	124177	n	n	n	n	n	n	n	n	n	n	n	n	n	97.6	86	122	70	code 2	6	30-32	mild	40	normal
28	154231	n	n	n	n	n	n	n	n	n	n	n	n	n	98	80	122	70	code 1	6	30-32	moderate	40	normal
29	134280	n	n	n	n	n	n	n	n	n	n	n	n	n	98.4	74	120	82	code 3	6	30-32	mild	35	normal
30	146008	n	n	n	n	n	n	n	n	n	n	n	n	n	97	72	110	70	code 0	6	30-32	moderate	40	normal
31	1367704	n	n	n	n	n	n	n	n	n	n	n	n	n	98	88	110	78	code 4	6	34-36	mild	40	normal
32	139684	n	n	n	n	n	n	n	n	n	n	n	n	n	98.4	76	110	78	code 2	6	32-34	moderate	40	normal
33	97552	n	n	n	n	n	n	n	n	n	n	n	n	n	98.4	74	120	80	code 3	6	32-34	mild	40	normal
34	146003	n	n	n	n	n	n	n	n	n	n	n	n	n	98.4	94	120	80	code 1	6	28-30	moderate	40	normal
35	936489	n	n	n	n	n	n	n	n	n	n	n	n	n	98.4	96	120	80	code 2	6	30-32	mild	40	normal
36	1381480	n	n	n	n	n	n	n	n	n	n	n	n	n	98.4	78	120	80	code 0	6	30-32	mild	35	normal
37	146003	n	n	n	n	n	n	n	n	n	n	n	n	n	98	78	110	78	code 4	6	28-30	mild	40	normal
38	1368497	n	n	n	n	n	n	n	n	n	n	n	n	n	97.4	76	110	78	code 1	6	34-36	mild	45	normal
39	1382225	n	n	n	n	n	n	n	n	n	n	n	n	n	98	88	100	78	code 3	6	32-34	mild	45	normal
40	1382215	n	n	n	n	n	n	n	n	n	n	n	n	n	97.4	86	100	82	code 1	6	30-32	moderate	45	normal
41	1381816	n	n	n	n	n	n	n	n	n	n	n	n	n	98	84	114	80	code 2	6	34-36	moderate	40	normal
42	464384	n	n	n	n	n	n	n	n	n	n	n	n	n	98.4	80	116	80	code 0	6	30-32	moderate	40	normal
43	1379381	n	n	n	n	n	n	n	n	n	n	n	n	n	97.2	86	122	78	code 3	6	32-34	mild	45	normal
44	1365196	n	n	n	n	n	n	n	n	n	n	n	n	n	98	90	120	80	code 0	6	34-36	mild	45	normal
45	468347	n	n	n	n	n	n	n	n	n	n	n	n	n	98	92	110	80	code 1	6	30-32	mild	40	normal
46	1382217	n	n	n	n	n	n	n	n	n	n	n	n	n	97	88	120	80	code 2	6	30-32	moderate	40	normal
47	113028	n	n	n	n	n	n	n	n	n	n	n	n	n	98.4	88	110	80	code 3	6	32-34	moderate	40	normal
48	1170070	n	n	n	n	n	n	n	n	n	n	n	n	n	98.4	84	110	80	code 0	6	34-36	moderate	45	normal
49	282082	n	n	n	n	n	n	n	n	n	n	n	n	n	97	90	120	80	code 1	6	28-30	mild	45	normal
50	1379901	n	n	n	n	n	n	n	n	n	n	n	n	n	98.6	98	120	80	code 2	6	30-32	mild	45	normal
51	1240227	n	n	n	n	n	n	n	n	n	n	n	n	n	98.4	99	120	70	code 1	6	34-36	moderate	45	normal
52	1269859	n	n	n	n	n	n	n	n	n	n	n	n	n	97	98	110	8078	code 1	6	32-34	mild	45	normal
53	554005	n	n	n	n	n	n	n	n	n	n	n	n	n	96	78	120	80	code 0	6	32-34	mild	45	normal
54	1387814	n	n	n	n	n	n	n	n	n	n	n	n	n	98	80	114	74	code 1	6	28-30	mild	40	normal
55	1382217	n	n	n	n	n	n	n	n	n	n	n	n	n	97	72	116	80	code 2	6	32-34	moderate	40	normal
56	1258057	n	n	n	n	n	n	n	n	n	n	n	n	n	98	76	122	76	code 3	6	34-36	moderate	40	normal
57	680575	n	n	n	n	n	n	n	n	n	n	n	n	n	97.2	80	120	70	code 3	6	34-36	moderate	40	normal
58	1388543	n	n	n	n	n	n	n	n	n	n	n	n	n	98	90	118	72	code 0	6	28-30	moderate	40	normal
59	1391344	n	n	n	n	n	n	n	n	n	n	n	n	n	97	92	110	80	code 1	6	28-30	moderate	45	normal
60	1391981	n	n	n	n	n	n	n	n	n	n	n	n	n	97.6	94	100	82	code 0	6	34-36	moderate	45	normal
61	1390480	n	n	n	n	n	n	n	n	n	n	n	n	n	98.3	96	110	78	code 3	6	28-30	mild	45	normal
62	132915	n	n	n	n	n	n	n	n	n	n	n	n	n	98.4	98	129	80	code 2	6	32-34	mild	45	normal
63	1252379	n	n	n	n	n	n	n	n	n	n	n	n	n	98	72	116	70	code 1	6	32-34	mild	45	normal

Sr. No	MRD NO	ER-SPECULUM EXAMINATION		INVESTIGATIONS													
											USG						
		Vagina	Discharge	HVS (HIGH VAGINAL SWAB)	CRP (C-REACTIVE PROTEIN)[mg/dl]	FOLLOW-UP CRP LEVELS (IF HIGH)			HB (HAEMOGLOBIN)	TLC (TOTAL LEUCOCYTE COUNT)	GESTATIONAL AGE [weeks.days]	LIQUOR	WEIGHT OF FETUS [gms]	LIE OF FETUS	INTERNAL OS	CERVICAL LENGTH [cms]	PLACENTAL MATURITY [grade]
1	1213805	normal	no	no growth	2.4	-	-	-	10.2	7.4	35.5	normal	2542	long	c	4	2
2	1214501	normal	no	no growth	22.87	26.8	16.1	-	11	9.8	32.3	normal	2030	long	c	3.5	1
3	1215076	normal	no	no growth	33.8	26.1	30.6	16.4	11.2	8.8	32.4	normal	1862	long	c	4	1
4	1217674	normal	no	e.coli	8.66	3.8	-	-	11.8	10.4	35.3	normal	2720	long	c	3.5	1
5	96048	normal	no	no growth	5.7	-	-	-	10.1	7.6	32.6	normal	1442	long	c	3.6	2
6	1108467	normal	no	no growth	0.62	-	-	-	11.9	9.4	29.6	normal	1213	long	c	3.8	1
7	1222606	normal	show	e.coli	13.4	6.8	-	-	11.4	9.7	33.1	normal	2075	long	c	4	2
8	1222701	normal	no	k.pneumoniae	26.8	20.7	-	-	11.2	9.9	30.6	normal	1298	long	c	4	1
9	76493	normal	no	no growth	9.8	7.4	-	-	12	10.4	31.2	normal	1446	long	c	4	1
10	124010	normal	no	e.coli, p.mirabilis	32.6	-	-	-	10.9	9.8	30	normal	1236	long	c	3.9	1
11	1182076	normal	no	e.coli	9.8	8	5.2	-	11.4	9.9	27.1	normal	956	long	c	3.7	1
12	8293	normal	no	no growth	11.99	-	-	-	10.6	7.8	32.1	normal	2004	long	c	4	1
13	1226414	normal	show	no growth	2.95	-	-	-	9.9	8.8	31.4	normal	1868	long	c	3.8	1
14	164328	normal	show	e.coli, p.aeruginosa	32.6	22.8	15.4	-	10.4	8.9	28	normal	990	variable	c	4	1
15	1154359	normal	no	no growth	1.4	-	-	-	11	9	32.4	normal	1989	long	c	4	3
16	198420	normal	no	e.coli	4.8	-	-	-	10	9	30.4	normal	1243	long	c	4	1
17	1121642	normal	no	no growth	8	5.3	-	-	10.9	10.4	29.4	normal	1002	oblique	o	3.2	1
18	138421	normal	show	no growth	5.6	-	-	-	12.4	11.2	29.4	normal	1201	oblique	c	3.6	1
19	17246	normal	show	e.coli	7.8	6.4	-	-	11.2	8.4	29.4	normal	1104	variable	c	3.8	1
20	345861	normal	no	e.coli	6.4	-	-	-	9.9	7.8	31.4	normal	1454	long	c	4	1
21	46434	normal	no	e.coli	4.6	-	-	-	10.9	8.4	31.2	normal	1464	long	c	3.6	1
22	750483	normal	no	proteus mirabilis	5.2	-	-	-	11	7.8	32	normal	1664	long	c	4	1
23	1269753	normal	no	no growth	28.3	-	-	-	11.2	8.4	30.3	normal	1277	long	c	4	1
24	1383275	normal	show	no growth	4.93	-	-	-	11.4	9.8	30.3	normal	1298	long	o	3.6	1
25	1380465	normal	no	no growth	4.45	-	-	-	11.6	10.5	32.3	normal	1987	long	c	4	1
26	1281028	normal	show	no growth	8.8	-	-	-	11.2	7.8	30.2	normal	1486	long	c	3.5	1
27	124177	normal	no	e.coli, staph aureus	5.6	-	-	-	11.2	9.8	30	normal	1200	long	c	3.8	1
28	154231	normal	no	e.coli	10.6	8.8	-	-	11.4	9.9	29.2	normal	1542	long	c	3.6	1
29	134280	normal	no	e.coli	17.4	-	-	-	13.1	9	32.3	normal	1708	long	c	4	2
30	146008	normal	no	no growth	28.6	24.8	-	-	12.7	10.9	30	normal	1148	long	c	3.6	1
31	1367704	normal	no	no growth	6.9	-	-	-	11.6	11.4	36.3	normal	2620	long	c	3.2	3
32	139684	normal	no	no growth	4.4	-	-	-	13.9	9.8	32	normal	1700	long	c	3.8	2
33	97552	normal	no	no growth	10.4	-	-	-	12.5	7.8	32.3	normal	1915	long	c	4	2
34	146003	normal	show	e.coli	14.6	10.4	9.9	-	10.9	8.4	29.4	normal	990	long	c	3.8	1
35	936489	normal	no	e.coli, k. pneumoniae	11.6	10.2	-	-	11	9.8	32	normal	1696	long	c	3.8	1
36	1381480	normal	no	proteus mirabilis	1.49	-	-	-	10.9	7.6	31.4	normal	1507	long	c	3.8	1
37	146003	normal	no	e.coli, k.pneumoniae	16.4	15.3	12.6	-	11.4	7.8	28.4	normal	910	variable	c	3.6	1
38	1368497	normal	no	no growth	3.7	-	-	-	12.4	8.5	35	normal	2409	long	c	4	2
39	1382225	normal	no	no growth	12.8	-	-	-	12.4	7.4	34.4	normal	2352	long	c	4	2
40	1382215	normal	show	e.coli	1	-	-	-	10.4	9.8	30.2	normal	1204	long	o	2.9	1
41	1381816	normal	no	no growth	10.7	-	-	-	10.9	6.9	35	normal	2034	long	c	3.8	1
42	464384	normal	show	e.coli	7.9	6.4	-	-	12.4	7.8	29.4	normal	1064	long	c	3.4	1
43	1379381	normal	no	e.coli	0.51	-	-	-	11.3	9.4	33.5	normal	1617	oblique	c	4	1
44	1365196	normal	no	e.coli	0.89	-	-	-	12.1	5.4	32.2	normal	1884	long	c	4	1
45	468347	normal	no	e.coli, e.faecalis	11.6	10.5	9.6	-	11.6	6	29.2	normal	1064	long	c	3.4	1
46	1382217	normal	no	no growth	8.13	-	-	-	11.4	8.7	32.2	normal	1937	long	c	3.8	1
47	113028	normal	no	no growth	12.3	-	-	-	12.3	9.4	27.5	normal	997	long	c	3.9	1
48	1170070	normal	show	e.coli	12.7	10.6	-	-	13.1	11.4	33	normal	2104	long	c	3.8	1
49	282082	normal	no	no growth	15.8	-	-	-	11.4	12.8	29.2	normal	1048	long	o	2.3	1
50	1379901	normal	no	no growth	9.56	-	-	-	12.4	7.6	32	normal	1828	long	c	3.8	1
51	1240227	normal	no	no growth	4.2	-	-	-	11.6	10	35.4	normal	2010	long	c	3.7	1
52	1269859	normal	no	no growth	0.27	-	-	-	11	5.9	28.3	normal	1234	long	c	4	1
53	554005	normal	no	e.faecalis, e.coli	6.4	-	-	-	11	5.3	33.3	normal	2057	long	c	3.8	2
54	1387814	normal	no	no growth	2.13	-	-	-	12	6.5	28.6	normal	1230	variable	o	1.5	1
55	1382217	normal	no	no growth	33.6	28.6	29.7	-	12.5	7.6	32.3	normal	1987	long	c	3.9	2
56	1258057	normal	no	no growth	5.6	-	-	-	12	6.8	36.5	normal	2941	long	c	3.8	2
57	680575	normal	no	e.coli	4.2	-	-	-	12.5	7.8	35.1	normal	2585	long	c	3.8	2
58	1388543	normal	no	staph. Hemolyticus	4.97	-	-	-	12	5.6	29.4	normal	1343	long	c	3.8	2
59	1391344	normal	no	no growth	6.71	-	-	-	12.1	7.8	30.2	normal	1966	long	c	4	2
60	1391981	normal	no	no growth	3.68	-	-	-	12	5.6	34.2	normal	2246	long	c	3.9	2
61	1390480	normal	no	e.coli, k.pneumoniae	79.4	67.2	-	-	11	5.7	29.4	normal	1343	long	c	3.6	2
62	132915	normal	no	no growth	9.24	-	-	-	11	6.8	32.4	normal	1714	long	c	3.9	2
63	1252379	normal	no	e.coli	7.8	-	-	-	12	6.7	22	normal	526	variable	c	4	1

Sr. No	MRD NO	NAME	AGE [yrs]	EDUCATION	SOCIO- ECONOMIC CLASS	OCCUPATION	OBSTETRIC H/O THE PATIENT							CHEIF COMPLAINTS									
							AGE OF MARRIAGE [yrs]	LMP	EDD	ANTE-NATAL CARE	GESTATIONAL AGE [weeks.days]	OBSTETRIC FORMULA	OBSTETRIC HISTORY	PAIN	DURATION {HRS}	INTENSITY	ONSET	TRIGGERING FACTORS			H/O ABORTION	BLEEDING GUMS	PRE-TERM LABOUR
																		COITUS	TRAUMA	TRAVEL			
64	1394383	HG	23	primary	lower class	housewife	23	01-02-00	02-11-22	unbooked	35.2	G1	primigravida	yes	6	-	gradual	n	n	n	n	n	n
65	1394465	RN	36	secondary	lower class	housewife	23	27-01-22	03-11-22	unbooked	32.4	G2P1L1	multigravida	yes	8	-	gradual	n	n	n	n	n	n
66	1393785	SK	26	post-graduation	upper middle class	working	23	04-02-22	11-11-22	booked	31.3	G1	primigravida	yes	10	-	gradual	n	n	n	n	n	n
67	1341850	HK	31	graduation	upper middle class	working	28	08-02-22	15-11-22	booked	30.2	G1	primigravida	yes	12	-	gradual	n	n	n	n	n	n
68	1124966	KK	33	post-graduation	upper middle class	working	30	03-01-22	10-10-22	booked	35.5	G2P1L1	multigravida	yes	16	-	gradual	n	n	n	n	n	n
69	1395902	NG	30	primary	lower class	housewife	28	23-01-22	30-10-22	booked	32.6	G1	primigravida	yes	24	-	gradual	n	n	n	n	n	n
70	1396284	MK	23	secondary	lower class	housewife	22	03-01-22	10-10-22	unbooked	35.3	G1	primigravida	yes	24	-	gradual	n	n	n	n	n	n
71	130962	RB	30	graduation	lower middle class	working	25	20-12-21	26-09-22	booked	36.3	G2P1L1	multigravida	yes	24	-	gradual	n	n	n	n	n	n
72	1338567	RS	22	primary	lower class	housewife	20	19-12-21	25-09-22	unbooked	36.4	G1	primigravida	yes	3	-	gradual	n	n	n	n	n	n
73	1398413	BK	29	graduation	lower middle class	working	24	25-01-22	01-11-22	booked	31.2	G2P1L1	multigravida	yes	4	-	gradual	n	n	n	n	n	n
74	1358310	MK	28	post-graduation	upper middle class	working	26	10-02-21	17-11-21	booked	36	G1	primigravida	yes	8	-	gradual	n	n	n	n	n	n
75	501238	RD	28	graduation	upper middle class	working	22	25-01-22	01-11-22	unbooked	31.2	G1	primigravida	yes	24	-	gradual	n	n	n	n	n	n
76	190634	JK	25	secondary	lower middle class	housewife	23	25-01-22	01-11-22	booked	31.2	G1	primigravida	yes	12	-	gradual	n	n	n	n	n	n
77	1382215	RG	25	secondary	lower class	housewife	23	02-02-22	09-11-22	booked	32.5	G1	primigravida	yes	12	-	gradual	n	n	n	n	n	n
78	592052	SK	32	graduation	lower middle class	house wife	30	13-02-21	20-11-21	booked	36	G1	primigravida	yes	3	-	gradual	n	n	n	n	n	n
79	1401697	MK	36	post-graduation	upper middle class	working	32	28-01-22	04-11-22	booked	33.5	G1	primigravida	yes	9	-	gradual	n	n	n	n	n	n
80	1358878	AS	30	graduation	upper class	house wife	28	21-12-21	27-09-22	booked	33.3	G1	primigravida	yes	12	-	gradual	n	n	n	n	n	n
81	364809	RG	23	secondary	lower middle class	housewife	21	09-02-22	16-11-22	unbooked	31.6	G1	primigravida	yes	24	-	gradual	n	n	n	n	n	n
82	1000364	SD	22	secondary	lower middle class	housewife	20	03-02-22	10-11-22	booked	32.5	G1	primigravida	yes	24	-	gradual	n	n	n	n	n	n
83	4624	RK	24	secondary	upper middle class	housewife	21	12-02-22	19-11-22	booked	31.3	G1	primigravida	yes	12	-	gradual	n	n	n	n	n	n
84	464117	RG	23	secondary	upper class	housewife	21	17-02-22	24-11-22	unbooked	30.5	G1	primigravida	yes	12	-	gradual	n	n	n	n	n	n
85	114107	IK	24	secondary	lower class	working	22	18-02-22	25-11-22	booked	30.4	G1	primigravida	yes	10	-	gradual	n	n	n	n	n	n
86	1358976	SP	24	secondary	lower middle class	working	20	03-12-21	09-09-22	booked	30	G2P1L1	multigravida	yes	10	-	gradual	n	n	n	n	n	n
87	382832	RR	27	graduation	upper middle class	housewife	25	25-01-22	01-11-22	unbooked	29.3	G1	primigravida	yes	12	-	gradual	n	n	n	n	n	n
88	1239620	SA	28	graduation	upper middle class	housewife	24	29-01-22	05-11-22	unbooked	29	G1	primigravida	yes	12	-	gradual	n	n	n	n	n	n
89	1262085	IK	33	graduation	upper middle class	working	30	13-07-21	19-04-22	booked	33	G1	primigravida	yes	12	-	gradual	n	n	n	n	n	n
90	1033139	KR	30	post-graduation	upper middle class	working	25	27-07-21	03-04-22	booked	35	G3A2	primigravida	yes	24	-	gradual	n	n	n	n	n	n
91	1254005	RK	32	post-graduation	upper middle class	working	25	06-07-21	12-04-22	booked	31.6	G2P1L1	multigravida	yes	243	-	gradual	n	n	n	n	n	n
92	1298963	MK	24	graduation	lower class	working	22	18-10-21	25-07-22	booked	28.3	G1	primigravida	yes	12	-	gradual	n	n	n	n	n	n
93	1267210	SB	31	primary	upper middle class	housewife	27	12-09-21	19-06-22	booked	32.2	G2A1	primigravida	yes	12	-	gradual	n	n	n	n	n	n
94	1243682	PJ	25	graduation	lower middle class	working	22	04-06-21	11-03-22	booked	33.2	G1	primigravida	yes	12	-	gradual	n	n	n	n	n	n
95	1243811	PK	32	primary	lower class	housewife	25	27-06-21	03-04-22	booked	30.1	G3P1L1A1	multigravida	yes	12	-	gradual	n	n	n	n	n	n
96	1248744	TB	23	secondary	lower middle class	housewife	21	28-05-21	04-03-22	unbooked	36	G1	primigravida	yes	12	-	gradual	n	n	n	n	n	n
97	1167742	JK	27	graduation	lower class	working	25	25-05-21	25-02-22	booked	34.6	G1	primigravida	yes	10	-	gradual	n	n	n	n	n	n
98	1222606	SR	30	graduation	lower middle class	working	28	25-11-21	01-09-22	booked	35	G1	primigravida	yes	24	-	gradual	n	n	n	n	n	n
99	980240	RR	37	graduation	upper middle class	working	30	12-11-21	19-01-22	booked	34.4	G2P1L0	multigravida	yes	12	-	gradual	n	n	n	n	n	n
100	1221207	RA	28	graduation	upper middle class	working	26	05-05-21	09-12-21	booked	31.1	G1	primigravida	yes	24	-	gradual	n	n	n	n	n	n
		CONTROLS																					
1	827332	RK	31	graduation	upper middle class	working	23	07-03-21	14-12-21	booked	37.3	G4P1L1A2	multigravida	yes	8	-	gradual	n	n	n	n	n	n
2	1110766	NK	27	post graduation	upper middle class	working	25	10-03-21	17-12-21	booked	37.2	G1	primigravida	yes	10	-	gradual	n	n	n	n	n	n
3	7460	SK	36	primary	lower class	housewife	31	07-03-21	14-12-21	booked	37.6	G3P1L1A1	multigravida	yes	10	-	gradual	n	n	n	n	n	n
4	684444	RJ	29	secondary	lower middle class	housewife	27	09-03-21	16-12-21	unbooked	37.5	G1	primigravida	yes	12	-	gradual	n	n	n	n	n	n
5	1218251	AJ	30	graduation	upper middle class	housewife	28	16-03-21	21-12-21	unbooked	37.3	G1	primigravida	yes	14	-	gradual	n	n	n	n	n	n
6	702543	TS	23	post graduation	upper middle class	housewife	22	11-03-21	18-12-21	unbooked	37.5	G1	primigravida	yes	7	-	gradual	n	n	n	n	n	n
7	1134819	HP	27	primary	upper middle class	working	25	13-03-21	20-12-21	booked	39	G1	primigravida	yes	8	-	gradual	n	n	n	n	n	n
8	880300	MS	27	secondary	lower middle class	working	25	10-03-21	17-12-21	booked	39.3	G1	primigravida	yes	10	-	gradual	n	n	n	n	n	n
9	1226126	RK	29	graduation	upper middle class	housewife	22	27-03-21	01-01-22	unbooked	38	G2P1L1	multigravida	yes	12	-	gradual	n	n	n	n	n	n
10	1224714	RS	30	post graduation	upper middle class	working	29	18-03-21	25-12-21	booked	39	G1	primigravida	yes	24	-	gradual	n	n	n	n	n	n
11	648852	SS	29	primary	upper middle class	housewife	27	26-03-21	02-01-22	booked	38	G1	primigravida	yes	24	-	gradual	n	n	n	n	n	n
12	1226235	DM	27	graduation	upper middle class	working	26	20-03-21	27-12-21	booked	39	G1	primigravida	yes	20	-	gradual	n	n	n	n	n	n
13	1218036	SJ	27	graduation	upper middle class	working	24	26-03-21	02-01-22	booked	39.1	G1	primigravida	yes	18	-	gradual	n	n	n	n	n	n
14	138106	AS	25	graduation	upper middle class	working	22	28-02-21	05-12-21	booked	38	G1	primigravida	yes	16	-	gradual	n	n	n	n	n	n
15	1142958	KK	23	post graduation	upper middle class	housewife	22	25-04-21	01-03-22	unbooked	39.3	G1	primigravida	yes	14	-	gradual	n	n	n	n	n	n
16	180142	SC	28	primary	lower middle class	housewife	25	28-02-21	05-12-21	booked	38	G1	primigravida	yes	12	-	gradual	n	n	n	n	n	n
17	38645	RN	28	secondary	lower class	working	26	28-04-21	02-02-22	booked	39	G1	primigravida	yes	12	-	gradual	n	n	n	n	n	n
18	160001	SS	27	primary	lower class	housewife	23	26-03-21	02-01-22	booked	38	G2P1L1	multigravida	yes	12	-	gradual	n	n	n	n	n	n
19	1131688	HK	32	secondary	lower middle class	working	28	06-05-21	10-02-22	booked	39.1	G1	primigravida	yes	10	-	gradual	n	n	n	n	n	n
20	172970	DK	34	graduation	upper middle class	housewife	26	12-03-21	19-12-21	unbooked	37.4	G2P1L1	multigravida	yes	12	-	gradual	n	n	n	n	n	n
21	1881420	SS	29	primary	lower class	housewife	26	23-05-21	27-02-22	booked	39	G1	primigravida	yes	8	-	gradual	n	n	n	n	n	n
22	336075	AK	33	graduation	upper middle class	working	26	29-05-21	05-03-22	booked	39.6	G2P1L1	multigravida	yes	3	-	gradual	n	n	n	n	n	n
23	960894	SS	30	post graduation	upper middle class	working	23	07-07-21	13-04-22	booked	38.2	G2P1L1	multigravida	yes	2	-	gradual	n	n	n	n	n	n
24	85831	AP	29	secondary	lower class	housewife	22	07-07-21	13-04-22	booked	38.1	G2P1L1	multigravida	yes	8	-	gradual	n	n	n	n	n	n
25	120465	MK	26	graduation	upper middle class	working	23	26-06-21	02-04-22	booked	39.6	G2A1	multigravida	yes	10	-	gradual	n	n	n	n	n	n
26	1173579	VJ	26	post graduation	upper middle class	housewife	18	14-07-21	21-04-22	unbooked	37.4	G3P1L1A1	multigravida	yes	18	-	gradual	n	n	n	n	n	n

Sr. No	MRD NO	PAST HISTORY													GENERAL EXAMINATION	PULSE [bpm]	BLOOD PRESSURE		ORO-DENTAL EXAMINATION		ABDOMINAL EXAMINATION			PI E
		TOOTHACHE	PRE-TERM BIRTH	TOOTH EXTRACTION	CERVICAL SURGERY	ANAEMIA	D N C	DIABETES	PID	HEART DISEASE	CHRONIC VAGINAL DISCHARGE	HYPERTENSION	PIH	OTHER	TEMPERATURE [°F]		SBP [mmHg]	DBP [mmHg]	CPITN INDEX The ten specified 17 16 11 26 27 47 46 31 36 37 Examined six	Surfaces examined are	Fundal Height [weeks]	Intensity	Duration [secs]	Cervix
64	1394383	n	n	n	n	n	n	n	n	n	n	n	n	n	98	74	114	80	code 4	6	34-36	moderate	40	normal
65	1394465	n	n	n	n	n	n	n	n	n	n	n	n	n	97	78	120	82	code 1	6	32-34	mild	40	normal
66	1393785	n	n	n	n	n	n	n	n	n	n	n	n	n	97	82	120	72	code 2	6	30-32	mild	40	normal
67	1341850	n	n	n	n	n	n	n	n	n	n	n	n	n	97	88	110	78	code 4	6	30-32	mild	40	normal
68	1124966	n	n	n	n	n	n	n	n	n	n	n	n	n	98	86	122	76	code 1	6	34-36	moderate	45	normal
69	1395902	n	n	n	n	n	n	n	n	n	n	n	n	n	97	84	118	80	code 3	6	32-34	moderate	45	normal
70	1396284	n	n	n	n	n	n	n	n	n	n	n	n	n	98.2	82	118	80	code 1	6	34-36	mild	45	normal
71	130962	n	n	n	n	n	n	n	n	n	n	n	n	n	98.4	78	116	80	code 4	6	34-36	moderate	45	normal
72	1338567	n	n	n	n	n	n	n	n	n	n	n	n	n	98.2	98	118	80	code 1	6	34-36	moderate	40	normal
73	1398413	n	n	n	n	n	n	n	n	n	n	n	n	n	97.5	76	120	78	code 2	6	30-32	mild	40	normal
74	1358310	n	n	n	n	n	n	n	n	n	n	n	n	n	98.2	86	100	78	code 4	6	34-36	mild	40	normal
75	501238	n	n	n	n	n	n	n	n	n	n	n	n	n	98.2	96	120	78	code 4	6	30-32	mild	40	normal
76	190634	n	n	n	n	n	n	n	n	n	n	n	n	n	97	74	120	80	code 2	6	30-32	moderate	45	normal
77	1382215	n	n	n	n	n	n	n	n	n	n	n	n	n	98	84	120	82	code 3	6	32-34	moderate	45	normal
78	592052	n	n	n	n	n	n	n	n	n	n	n	n	n	98.4	94	110	70	code 0	6	34-36	mild	45	normal
79	1401697	n	n	n	n	n	n	n	n	n	n	n	n	n	98	90	122	80	code 3	6	32-34	mild	45	normal
80	1358878	n	n	n	n	n	n	n	n	n	n	n	n	n	97	80	118	80	code 3	6	32-34	mild	45	normal
81	364809	n	n	n	n	n	n	n	n	n	n	n	n	n	96	88	120	80	code 4	6	30-32	moderate	45	normal
82	1000364	n	n	n	n	n	n	n	n	n	n	n	n	n	97.2	70	114	72	code 2	6	32-34	mild	40	normal
83	4624	n	n	n	n	n	n	n	n	n	n	n	n	n	98.4	88	116	76	code 3	6	30-32	mild	40	normal
84	464117	n	n	n	n	n	n	n	n	n	n	n	n	n	88	98	118	78	code 0	6	30-32	mild	45	normal
85	114107	n	n	n	n	n	n	n	n	n	n	n	n	n	96	74	120	80	code 3	6	30-32	moderate	45	normal
86	1358976	n	n	n	n	n	n	n	n	n	n	n	n	n	97	74	122	80	code 2	6	28-30	mild	45	normal
87	382832	n	n	n	n	n	n	n	n	n	n	n	n	n	98.2	86	110	80	code 2'	6	28-30	moderate	45	normal
88	1239620	n	n	n	n	n	n	n	n	n	n	n	n	n	97.4	84	112	78	code 0	6	28-30	moderate	45	normal
89	1262085	n	n	n	n	n	n	n	n	n	n	n	n	n	98.2	88	114	78	code 1	6	32-34	moderate	45	normal
90	1033139	n	n	n	n	n	n	n	n	n	n	n	n	n	96.4	80	120	80	code 4	6	34-36	mild	45	normal
91	1254005	n	n	n	n	n	n	n	n	n	n	n	n	n	98.2	78	120	80	code 1	6	30-32	mild	40	normal
92	1298963	n	n	n	n	n	n	n	n	n	n	n	n	n	98.7	72	120	80	code 1	6	28-30	mild	45	normal
93	1267210	n	n	n	n	n	n	n	n	n	n	n	n	n	97	78	118	72	code 0	6	32-34	moderate	45	normal
94	1243682	n	n	n	n	n	n	n	n	n	n	n	n	n	97.6	92	120	80	code 1	6	32-34	moderate	45	normal
95	1243811	n	n	n	n	n	n	n	n	n	n	n	n	n	97.8	72	110	70	code 1	6	30-32	moderate	45	normal
96	1248744	n	n	n	n	n	n	n	n	n	n	n	n	n	96.4	94	120	80	code 1	6	34-36	mild	40	normal
97	1167742	n	n	n	n	n	n	n	n	n	n	n	n	n	98.2	84	110	70	code4	6	34-36	mild	40	normal
98	1222606	n	n	n	n	n	n	n	n	n	n	n	n	n	98.2	90	112	80	code 1	6	34-36	mild	40	normal
99	980240	n	n	n	n	n	n	n	n	n	n	n	n	n	98.3	80	124	80	code 4	6	34-36	moderate	45	normal
100	1221207	n	n	n	n	n	n	n	n	n	n	n	n	n	98.2	70	110	80	code 0	6	30-32	moderate	40	normal
1	827332	n	n	n	n	n	n	n	n	n	n	n	n	n	97	80	124	80	code 0	6	34 weeks with flanks full	mild	35	normal
2	1110766	n	n	n	n	n	n	n	n	n	n	n	n	n	98.4	82	126	70	code 0	6	34 weeks with flanks full	moderate	40	normal
3	7460	n	n	n	n	n	n	n	n	n	n	n	n	n	97.2	84	118	80	code 3	6	34 weeks with flanks full	good	45	normal
4	684444	n	n	n	n	n	n	n	n	n	n	n	n	n	98.4	86	120	70	code 3	6	34 weeks with flanks full	mild	45	normal
5	1218251	n	n	n	n	n	n	n	n	n	n	n	n	n	98.2	90	114	80	code 0	6	34 weeks with flanks full	mild	40	normal
6	702543	n	n	n	n	n	n	n	n	n	n	n	n	n	98	98	120	70	code 3	6	34 weeks with flanks full	moderate	40	normal
7	1134819	n	n	n	n	n	n	n	n	n	n	n	n	n	97.6	84	120	68	code 4	6	34 weeks with flanks full	moderate	40	normal
8	880300	n	n	n	n	n	n	n	n	n	n	n	n	n	98	88	120	78	code 0	6	34 weeks with flanks full	good	45	normal
9	1226126	n	n	n	n	n	n	n	n	n	n	n	n	n	96.4	90	110	74	code 3	6	34 weeks with flanks full	mild	45	normal
10	1224714	n	n	n	n	n	n	n	n	n	n	n	n	n	97.3	80	114	82	code 0	6	34 weeks with flanks full	moderate	45	normal
11	648852	n	n	n	n	n	n	n	n	n	n	n	n	n	98.4	82	112	78	code 0	6	34 weeks with flanks full	moderate	45	normal
12	1226235	n	n	n	n	n	n	n	n	n	n	n	n	n	98.6	84	100	70	code 0	6	34 weeks with flanks full	moderate	45	normal
13	1218036	n	n	n	n	n	n	n	n	n	n	n	n	n	98.4	78	100	70	code 3	6	34 weeks with flanks full	mild	45	normal
14	138106	n	n	n	n	n	n	n	n	n	n	n	n	n	97.4	90	110	70	code 3	6	34 weeks with flanks full	mild	40	normal
15	1142958	n	n	n	n	n	n	n	n	n	n	n	n	n	98.2	88	110	70	code 0	6	34 weeks with flanks full	mild	35	normal
16	180142	n	n	n	n	n	n	n	n	n	n	n	n	n	98.3	88	100	70	code 4	6	34 weeks with flanks full	mild	35	normal
17	38645	n	n	n	n	n	n	n	n	n	n	n	n	n	97.6	90	120	70	code 3	6	34 weeks with flanks full	mild	35	normal
18	160001	n	n	n	n	n	n	n	n	n	n	n	n	n	98	94	120	70	code 2	6	34 weeks with flanks full	mild	35	normal
19	1131688	n	n	n	n	n	n	n	n	n	n	n	n	n	97	96	120	80	code 3	6	34 weeks with flanks full	moderate	40	normal
20	172970	n	n	n	n	n	n	n	n	n	n	n	n	n	97.1	98	120	80	code 0	6	34 weeks with flanks full	moderate	40	normal
21	1881420	n	n	n	n	n	n	n	n	n	n	n	n	n	98.6	90	120	78	code 3	6	34 weeks with flanks full	moderate	45	normal
22	336075	n	n	n	n	n	n	n	n	n	n	n	n	n	97.2	84	122	74	code 2	6	34 weeks with flanks full	moderate	45	normal
23	960894	n	n	n	n	n	n	n	n	n	n	n	n	n	98.5	78	110	80	code 2	6	34 weeks with flanks full	moderate	45	normal
24	85831	n	n	n	n	n	n	n	n	n	n	n	n	n	97.3	88	120	78	code 0	6	34 weeks with flanks full	mild	45	normal
25	120465	n	n	n	n	n	n	n	n	n	n	n	n	n	98.4	90	120	74	code 0	6	34 weeks with flanks full	good	45	normal
26	1173579	n	n	n	n	n	n	n	n	n	n	n	n	n	97.4	90	120	80	code 2	6	34 weeks with flanks full	good	45	normal

Sr. No	MRD NO	ER-SPECULUM EXAMINATION		INVESTIGATIONS													
											USG						
		Vagina	Discharge	HVS (HIGH VAGINAL SWAB)	CRP (C-REACTIVE PROTEIN)[mg/dl]	FOLLOW-UP CRP LEVELS (IF HIGH)			HB (HAEMOGLOBIN)	TLC (TOTAL LEUCOCYTE COUNT)	GESTATIONAL AGE [weeks.days]	LIQUOR	WEIGHT OF FETUS [gms]	LIE OF FETUS	INTERNAL OS	CERVICAL LENGTH [cms]	PLACENTAL MATURITY [grade]
64	1394383	normal	show	no growth	1.16	-	-	-	12.4	5.6	32.4	normal	2083	long	c	4	2
65	1394465	normal	no	no growth	4.54	-	-	-	12.6	9.6	30	normal	1313	long	c	3.9	1
66	1393785	normal	no	staph. Hemolyticus	10.5	-	-	-	10.4	7.8	30.2	normal	1246	long	c	3.6	1
67	1341850	normal	no	no growth	68.6	-	-	-	11	4.6	30	normal	1416	long	c	3.6	1
68	1124966	normal	no	no growth	4.7	-	-	-	12	5.4	32.3	normal	1918	long	c	4	2
69	1395902	normal	show	no growth	14.63	-	-	-	11	6.7	31.6	normal	1781	long	c	4	2
70	1396284	normal	no	no growth	1.21	-	-	-	12	7.8	35.1	normal	1914	long	c	3.9	2
71	130962	normal	no	e.coli	4.8	-	-	-	11	6.6	32.2	normal	1684	long	c	4	1
72	1338567	normal	show	k.pneumoniae	4.8	-	-	-	8	6.5	32.1	normal	1717	long	c	4	2
73	1398413	normal	no	e. Faecalis	3.18	-	-	-	11	4.6	31	normal	1499	long	c	3.8	1
74	1358310	normal	no	no growth	4.1	-	-	-	11.1	8.1	35.4	normal	2234	oblique	o	3.2	3
75	501238	normal	no	proteus mirabilis	5.1	-	-	-	11	8.3	31	normal	1412	long	c	4	1
76	190634	normal	no	e.coli	8.4	7.9	-	-	11	8.4	31	normal	1378	oblique	c	4	1
77	1382215	normal	no	e.coli	1.09	-	-	-	11	5.7	33.4	normal	2265	long	c	4	2
78	592052	normal	no	no growth	4.7	-	-	-	11.4	7.6	34	normal	2211	long	c	3.9	2
79	1401697	normal	no	k.pneumoniae	5.2	-	-	-	12.5	8.7	32.6	normal	1918	long	c	3.9	2
80	1358878	normal	no	no growth	1.9	-	-	-	12.4	7.8	33	normal	1814	long	c	4	2
81	364809	normal	no	e.coli	4.7	-	-	-	13.1	9.7	30.2	normal	1428	long	o	3.2	1
82	1000364	normal	no	e.coli, staph hemolyticus	17.6	-	-	-	12	5.8	31.6	normal	1463	long	c	3.9	1
83	4624	normal	no	no growth	4.2	-	-	-	12.1	5.7	30.6	normal	1499	long	c	4	1
84	464117	normal	no	e.coli	14.6	-	-	-	12.7	6.5	30.2	normal	1546	long	o	4	1
85	114107	normal	show	k.pneumoniae, p. mirabilis	8.6	-	-	-	12	5.6	30.2	normal	1214	long	c	4	1
86	1358976	normal	no	no growth	12.1	-	-	-	12	7.5	29.4	normal	1114	variable	c	2.8	1
87	382832	normal	no	proteus mirabilis	18.4	-	-	-	11	11	29.1	normal	1099	variable	o	3.1	1
88	1239620	normal	no	no growth	2.2	-	-	-	12	10.9	29	normal	1184	variable	o	2.9	1
89	1262085	normal	show	no growth	1.4	-	-	-	13	11	32.6	normal	1711	long	c	3.1	1
90	1033139	normal	no	e.coli	6.8	-	-	-	13	12.4	34.6	normal	2043	long	c	3.8	3
91	1254005	normal	no	e.coli	7.9	-	-	-	12.1	3.8	31.6	normal	1613	long	c	3.7	2
92	1298963	normal	no	no growth	1.11	-	-	-	11.4	4.6	28.1	normal	980	variable	c	3.8	1
93	1267210	normal	show	k. Pneumoniae	14.02	-	-	-	11.9	5.6	32	normal	1948	long	c	4	2
94	1243682	normal	no	e.coli	9.7	-	-	-	11.3	6.5	31.6	normal	1806	long	c	3.9	1
95	1243811	normal	no	no growth	53.07	-	-	-	11.7	12.1	30	normal	1687	long	c	4	2
96	1248744	normal	no	no growth	14.4	-	-	-	11	3.8	32	normal	1784	long	c	4	2
97	1167742	normal	no	k. Pneumoniae, e.coli	3.45	-	-	-	12	4.6	34.4	normal	1884	long	c	3.8	3
98	1222606	normal	no	no growth	6.52	-	-	-	12	7.8	33.4	normal	2075	long	c	3.8	3
99	980240	normal	no	no growth	18.4	-	-	-	12	10.4	34.4	normal	2422	oblique	c	3.8	2
100	1221207	normal	show	k. Pneumoniae, p. mirabilis	75.39	-	-	-	12.1	11.2	31	normal	1554	long	o	2.4	1
1	827332	normal	show	no growth	1.6	-	-	-	12	8.2	33.2	normal	1944	long	c	4	2
2	1110766	normal	no	no growth	4.1	-	-	-	11.3	6.4	33.3	normal	2014	long	c	4	2
3	7460	normal	no	no growth	8.8	-	-	-	12.4	7.8	33.5	normal	2213	long	c	4	2
4	684444	normal	no	no growth	5.94	-	-	-	10.8	9.4	36.6	normal	2998	oblique	c	4	3
5	1218251	normal	no	no growth	5.61	-	-	-	10.4	7.9	36.4	normal	2784	transverse	c	4	3
6	702543	normal	no	no growth	16.11	11	5.2	-	11.4	8.6	37.2	normal	3035	long	c	4	3
7	1134819	normal	no	e.coli, k. pneumoniae	7.21	-	-	-	11	8.4	33.6	normal	2193	long	c	4	2
8	880300	normal	no	no growth	3.4	-	-	-	12.3	9.6	34.4	normal	2348	long	c	4	2
9	1226126	normal	no	no growth	2.73	-	-	-	11	9.8	37.4	normal	3014	long	c	4	3
10	1224714	normal	no	no growth	2.6	-	-	-	11	9.4	33.6	normal	2240	oblique	c	3.6	2
11	648852	normal	show	no growth	0.13	-	-	-	11.4	5.8	34.5	normal	2469	long	c	3.8	2
12	1226235	normal	show	no growth	0.9	-	-	-	12.4	8.8	34.3	normal	2322	long	c	3.8	2
13	1218036	normal	no	no growth	16.3	-	-	-	13	6.4	32.5	normal	2039	long	c	3.9	2
14	138106	normal	no	e.coli,	6.8	-	-	-	12.8	5.4	37.4	normal	3033	long	c	4	3
15	1142958	normal	no	no growth	1.6	-	-	-	12.8	8.9	36.6	normal	2988	long	c	4	3
16	180142	normal	no	p.mirabilis	7.8	-	-	-	12	8.8	34.6	normal	1999	long	c	4	2
17	38645	normal	no	no growth	14.6	9.8	5.4	-	11.8	7.7	38.2	normal	3111	long	c	4	3
18	160001	normal	no	no growth	4.8	-	-	-	11	8.9	36.4	normal	2700	long	c	4	3
19	1131688	normal	no	e.coli	12.1	-	-	-	4	7	32.1	normal	1879	long	c	4	2
20	172970	normal	no	no growth	23.6	-	-	-	12	7.8	35.4	normal	2600	oblique	c	4	2
21	1881420	normal	no	e.coli	5.28	-	-	-	12	5.9	38	normal	3200	long	c	3.6	3
22	336075	normal	no	no growth	4.8	-	-	-	12.4	9	37.4	normal	2984	long	c	4	3
23	960894	normal	no	no growth	5.2	-	-	-	12.8	5.8	35	normal	1734	oblique	c	4	2
24	85831	normal	no	no growth	4.2	-	-	-	13	5.8	35	normal	1753	long	c	4	2
25	120465	normal	show	no growth	6.4	-	-	-	12	9	31	normal	1364	long	c	4	2
26	1173579	normal	show	no growth	0.83	-	-	-	11.4	8.7	35	normal	1800	oblique	c	4	2

Sr. No	MRD NO	NAME	AGE [yrs]	EDUCATION	SOCIO- ECONOMIC CLASS	OCCUPATION	OBSTETRIC H/O THE PATIENT							CHEIF COMPLAINTS									
							AGE OF MARRIAGE [yrs]	LMP	EDD	ANTE-NATAL CARE	GESTATIONAL AGE [weeks.days]	OBSTETRIC FORMULA	OBSTETRIC HISTORY	PAIN	DURATION {HRS}	INTENSITY	ONSET	TRIGGERING FACTORS			H/O ABORTION	BLEEDING GUMS	PRE-TERM LABOUR
																		COITUS	TRAUMA	TRAVEL			
27	8004	NJ	35	graduation	upper middle class	working	26	14-07-21	21-04-22	booked	37.5	G3P1L1A1	multigravida	yes	4	-	gradual	n	n	n	n	n	n
28	1257547	KJ	29	secondary	upper middle class	working	22	11-09-21	18-06-22	booked	37.6	G2P1L1	multigravida	yes	18	-	gradual	n	n	n	n	n	n
29	7825	RB	37	graduation	upper middle class	working	28	12-09-21	19-06-22	booked	37.5	G3P1L1A1	multigravida	yes	2	-	gradual	n	n	n	n	n	n
30	181164	MJ	34	secondary	upper middle class	housewife	24	16-01-21	23-10-22	booked	37.1	G3P2L1	multigravida	yes	10	-	gradual	n	n	n	n	n	n
31	136800	KK	28	graduation	upper middle class	housewife	24	26-11-21	02-09-22	booked	39.5	G1	primigravida	yes	12	-	gradual	n	n	n	n	n	n
32	352970	TJ	30	post graduation	upper middle class	working	23	20-12-21	26-09-22	booked	39	G2P1L1	multigravida	yes	15	-	gradual	n	n	n	n	n	n
33	106478	TG	30	graduation	lower middle class	housewife	25	15-02-22	22-11-22	booked	39.6	G2P1L1	multigravida	yes	18	-	gradual	n	n	n	n	n	n
34	136240	VP	28	graduation	lower middle class	housewife	23	17-12-20	23-09-21	booked	38.5	G2P1L1	multigravida	yes	12	-	gradual	n	n	n	n	n	n
35	583496	SS	30	post graduation	upper middle class	working	25	15-12-20	22-09-21	booked	39	G2P1L1	primigravida	yes	8	-	gradual	n	n	n	n	n	n
36	1367645	BD	33	graduation	upper lower class	working	32	10-12-21	16-09-22	booked	37	G1	primigravida	yes	10	-	gradual	n	n	n	n	n	n
37	434880	MK	34	post graduation	upper middle class	working	27	08-12-21	14-09-22	booked	37.4	G2P1L1	multigravida	yes	18	-	gradual	n	n	n	n	n	n
38	468892	MK	34	graduation	upper middle class	working	22	24-11-21	30-08-22	booked	39.6	G2P1L1	multigravida	yes	10	-	gradual	n	n	n	n	n	n
39	463289	HK	27	secondary	upper lower class	housewife	23	25-11-21	31-08-22	booked	39.6	G2P1L1	multigravida	yes	14	-	gradual	n	n	n	n	n	n
40	1382981	AP	36	primary	upper middle class	housewife	28	27-12-21	03-10-22	booked	38	G2P1L1	multigravida	yes	8	-	gradual	n	n	n	n	n	n
41	1261305	RB	34	graduation	upper middle class	housewife	34	27-11-21	03-09-22	booked	39.2	G2P1L1	multigravida	yes	12	-	gradual	n	n	n	n	n	n
42	1274072	SD	26	post graduation	upper middle class	working	20	29-12-21	05-10-22	unbooked	37	G2P1L0	multigravida	yes	8	-	gradual	n	n	n	n	n	n
43	143434	MK	30	primary	upper middle class	housewife	25	03-03-22	10-12-22	unbooked	37.4	G2P1L1	multigravida	yes	12	-	gradual	n	n	n	n	n	n
44	1200167	VG	27	secondary	lower middle class	working	25	08-12-21	14-09-22	booked	37.6	G1	primigravida	yes	6	-	gradual	n	n	n	n	n	n
45	46840	SV	28	graduation	upper middle class	working	26	29-11-21	04-09-22	booked	39.2	G1	primigravida	yes	10	-	gradual	n	n	n	n	n	n
46	8761	VS	28	post graduation	upper class	housewife	22	03-03-22	10-12-22	booked	37.6	G2P1L1	multigravida	yes	14	-	gradual	n	n	n	n	n	n
47	1383275	VK	32	secondary	lower middle class	working	29	01-01-22	08-10-22	booked	37.3	G1	primigravida	yes	18	-	gradual	n	n	n	n	n	n
48	948036	BK	31	secondary	upper middle class	working	27	02-01-22	09-10-22	booked	37.2	G2P1L1	multigravida	yes	12	-	gradual	n	n	n	n	n	n
49	1320403	VK	33	secondary	lower class	working	26	13-12-21	20-09-21	booked	37.5	G2P1L1	multigravida	yes	10	-	gradual	n	n	n	n	n	n
50	436485	VR	30	graduation	upper middle class	housewife	26	12-01-21	19-10-21	booked	37.2	G1	primigravida	yes	6	-	gradual	n	n	n	n	n	n
51	500019	KK	30	graduation	upper middle class	housewife	23	23-12-2021	29-09-22	booked	38	G2P1L1	multigravida	yes	12	-	gradual	n	n	n	n	n	n
52	198960	NJ	32	post graduation	upper middle class	working	25	19-12-21	25-09-22	booked	39.4	G3P2L2	multigravida	yes	12	-	gradual	n	n	n	n	n	n
53	1371697	SK	29	secondary	lower middle class	working	27	01-01-22	08-10-22	booked	37.5	G1	primigravida	yes	8	-	gradual	n	n	n	n	n	n
54	956779	MJ	32	secondary	upper class	housewife	23	19-12-21	25-09-21	unbooked	39.4	G3P2L2	multigravida	yes	5	-	gradual	n	n	n	n	n	n
55	1385849	KJ	31	post graduation	upper middle class	working	28	04-01-22	11-10-22	booked	37.3	G1	primigravida	yes	10	-	gradual	n	n	n	n	n	n
56	138462	SP	30	secondary	upper class	working	29	09-11-21	16-08-22	booked	39.1	G1	primigravida	yes	5	-	gradual	n	n	n	n	n	n
57	9506110	AJ	30	graduation	upper class	housewife	27	17-11-21	24-08-22	unbooked	38	G1	primigravida	yes	24	-	gradual	n	n	n	n	n	n
58	1100309	RP	24	graduation	lower middle class	working	23	19-11-21	26-08-22	booked	37.5	G1	primigravida	yes	8	-	gradual	n	n	n	n	n	n
59	100410	JG	37	post graduation	upper middle class	working	35	09-11-21	16-08-22	booked	39.1	G1	primigravida	yes	12	-	gradual	n	n	n	n	n	n
60	460010	HD	30	graduation	upper middle class	housewife	28	17-11-21	24-08-22	booked	38	G1	primigravida	yes	10	-	gradual	n	n	n	n	n	n
61	614231	IJ	24	graduation	upper middle class	housewife	22	17-11-21	24-08-22	booked	38	G1	primigravida	yes	8	-	gradual	n	n	n	n	n	n
62	138629	TP	30	post graduation	upper middle class	working	22	12-10-21	19-07-22	booked	38.5	G2P1L1	multigravida	yes	14	-	gradual	n	n	n	n	n	n
63	140010	SS	24	secondary	lower middle class	housewife	22	12-10-21	19-07-22	unbooked	39.3	G1	primigravida	yes	6	-	gradual	n	n	n	n	n	n
64	237881	AS	30	primary	lower middle class	housewife	21	16-12-21	22-09-22	booked	38.4	G2P1L1	multigravida	yes	18	-	gradual	n	n	n	n	n	n
65	1397420	RK	26	secondary	lower class	housewife	24	14-12-21	20-09-22	booked	38.2	G1	primigravida	yes	12	-	gradual	n	n	n	n	n	n
66	1263712	RM	26	secondary	lower class	housewife	23	20-12-21	26-09-22	booked	38	G1	primigravida	yes	5	-	gradual	n	n	n	n	n	n
67	1065795	NN	32	graduation	upper middle class	working	28	16-12-21	22-09-22	booked	38.2	G2A1	primigravida	yes	10	-	gradual	n	n	n	n	n	n
68	231290	SM	36	post graduation	upper middle class	working	30	01-02-22	08-11-22	booked	38.1	G1	primigravida	yes	8	-	gradual	n	n	n	n	n	n
69	1405326	RD	28	graduation	upper middle class	housewife	25	04-02-22	11-01-22	booked	38.2	G1	primigravida	yes	12	-	gradual	n	n	n	n	n	n
70	1326120	PR	30	graduation	upper middle class	housewife	23	21-12-21	27-09-22	booked	37.2	G2P1L1	multigravida	yes	10	-	gradual	n	n	n	n	n	n
71	1301975	RS	23	secondary	lower middle class	working	18	06-02-22	13-11-22	booked	38.1	G2P1L1	multigravida	yes	8	-	gradual	n	n	n	n	n	n
72	1406991	TK	23	graduation	lower middle class	housewife	20	02-02-22	09-11-22	unbooked	38.6	G2A1	primigravida	yes	6	-	gradual	n	n	n	n	n	n
73	190283	DB	28	graduation	lower middle class	working	26	28-11-22	04-09-22	booked	39.4	G1	primigravida	yes	18	-	gradual	n	n	n	n	n	n
74	1200977	RS	29	graduation	lower middle class	working	27	26-11-21	02-09-22	booked	39.6	G1	primigravida	yes	4	-	gradual	n	n	n	n	n	n
75	300091	TP	32	post graduation	upper middle class	housewife	25	25-11-21	01-09-22	booked	39.5	G2P1L1	multigravida	yes	12	-	gradual	n	n	n	n	n	n
76	552638	PT	30	secondary	upper middle class	working	23	26-11-21	02-09-22	booked	37.6	G2P1L1	multigravida	yes	4	-	gradual	n	n	n	n	n	n
77	953227	RK	32	graduation	upper middle class	housewife	23	01-02-21	08-11-21	booked	37.1	G2P1L1	multigravida	yes	8	-	gradual	n	n	n	n	n	n
78	400908	TP	31	graduation	upper middle class	working	29	25-12-21	01-10-22	booked	38.4	G1	primigravida	yes	14	-	gradual	n	n	n	n	n	n
79	1289273	AK	29	post graduation	upper middle class	housewife	31	11-02-22	18-11-22	unbooked	40.3	G1	primigravida	yes	4	-	gradual	n	n	n	n	n	n
80	1280295	MJ	27	graduation	lower middle class	working	25	15-02-22	22-11-22	booked	39.3	G1	primigravida	yes	10	-	gradual	n	n	n	n	n	n
81	1470236	GK	30	graduation	lower middle class	working	22	20-12-21	26-09-22	booked	39.1	G2P1L1	multigravida	yes	8	-	gradual	n	n	n	n	n	n
82	964382	RD	25	post graduation	lower middle class	working	23	16-12-21	22-09-22	booked	39.5	G1	primigravida	yes	6	-	gradual	n	n	n	n	n	n
83	141112	HK	30	graduation	upper middle class	housewife	22	16-09-21	22-09-22	unbooked	39.5	G2P1L1	multigravida	yes	4	-	gradual	n	n	n	n	n	n
84	462381	TS	25	post graduation	upper middle class	working	23	16-12-21	22-09-22	booked	39.5	G1	primigravida	yes	14	-	gradual	n	n	n	n	n	n
85	140012	RM	24	secondary	upper middle class	working	22	15-12-21	21-09-22	booked	39.6	G1	primigravida	yes	12	-	gradual	n	n	n	n	n	n
86	164038	SK	25	graduation	upper middle class	housewife	23	18-02-22	25-11-22	booked	39.3	G1	primigravida	yes	4	-	gradual	n	n	n	n	n	n
87	130148	MJ	27	post graduation	upper middle class	housewife	25	20-02-22	27-11-22	booked	39.3	G1	primigravida	yes	10	-	gradual	n	n	n	n	n	n
88	1245069	AS	29	graduation	upper middle class	working	27	27-02-22	04-12-22	booked	38.4	G1	primigravida	yes	14	-	gradual	n	n	n	n	n	n
89	1389007	RS	29	graduation	upper middle class	housewife	24	27-02-22	04-12-22	booked	38.4	G2P1L1	multigravida	yes	2	-	gradual	n	n	n	n	n	n
90	1410282	SK	27	secondary	lower middle class	housewife	25	04-03-22	11-12-22	booked	37.4	G1	primigravida	yes	18	-	gradual	n	n	n	n	n	n

Sr. No	MRD NO	PAST HISTORY													GENERAL EXAMINATION	PULSE [bpm]	BLOOD PRESSURE		ORO-DENTAL EXAMINATION		ABDOMINAL EXAMINATION			PI E
		TOOTHACHE	PRE-TERM BIRTH	TOOTH EXTRACTION	CERVICAL SURGERY	ANAEMIA	D N C	DIABETES	PID	HEART DISEASE	CHRONIC VAGINAL DISCHARGE	HYPERTENSION	PIH	OTHER	TEMPERATURE [°F]		SBP [mmHg]	DBP [mmHg]	CPITN INDEX The ten specified 17 16 11 26 27 47 46 31 36 37 Examined six	Surfaces examined are	Fundal Height [weeks]	Intensity	Duration [secs]	Cervix
27	8004	n	n	n	n	n	n	n	n	n	n	n	n	n	98.3	92	120	76	code 1	6	34 weeks with flanks full	good	45	normal
28	1257547	n	n	n	n	n	n	n	n	n	n	n	n	n	97.5	90	120	80	code 1	6	34 weeks with flanks full	good	45	normal
29	7825	n	n	n	n	n	n	n	n	n	n	n	n	n	98.4	98	120	76	code 1	6	34 weeks with flanks full	mild	30	normal
30	181164	n	n	n	n	n	n	n	n	n	n	n	n	n	97	100	110	74	code 2	6	34 weeks with flanks full	mild	35	normal
31	136800	n	n	n	n	n	n	n	n	n	n	n	n	n	98.5	88	124	80	code 1	6	34 weeks with flanks full	moderate	40	normal
32	352970	n	n	n	n	n	n	n	n	n	n	n	n	n	97	78	118	70	code 0	6	34 weeks with flanks full	moderate	45	normal
33	106478	n	n	n	n	n	n	n	n	n	n	n	n	n	98	68	118	70	code 3	6	34 weeks with flanks full	moderate	45	normal
34	136240	n	n	n	n	n	n	n	n	n	n	n	n	n	97	70	120	80	code 1	6	34 weeks with flanks full	good	45	normal
35	583496	n	n	n	n	n	n	n	n	n	n	n	n	n	98	88	110	78	code 0	6	34 weeks with flanks full	good	45	normal
36	1367645	n	n	n	n	n	n	n	n	n	n	n	n	n	98	88	110	80	code 1	6	34 weeks with flanks full	moderate	45	normal
37	434880	n	n	n	n	n	n	n	n	n	n	n	n	n	98.3	88	110	76	code 1	6	34 weeks with flanks full	mild	45	normal
38	468892	n	n	n	n	n	n	n	n	n	n	n	n	n	97.2	80	110	80	code 2	6	34 weeks with flanks full	mild	45	normal
39	463289	n	n	n	n	n	n	n	n	n	n	n	n	n	98.4	80	120	70	code 1	6	34 weeks with flanks full	mild	45	normal
40	1382981	n	n	n	n	n	n	n	n	n	n	n	n	n	98.6	90	120	80	code 3	6	34 weeks with flanks full	moderate	45	normal
41	1261305	n	n	n	n	n	n	n	n	n	n	n	n	n	97.4	90	110	70	code 4	6	34 weeks with flanks full	good	40	normal
42	1274072	n	n	n	n	n	n	n	n	n	n	n	n	n	96.4	98	112	80	code 1	6	34 weeks with flanks full	mild	35	normal
43	143434	n	n	n	n	n	n	n	n	n	n	n	n	n	98.2	86	120	80	code 1	6	34 weeks with flanks full	mild	35	normal
44	1200167	n	n	n	n	n	n	n	n	n	n	n	n	n	87	86	114	74	code 2	6	34 weeks with flanks full	mild	40	normal
45	46840	n	n	n	n	n	n	n	n	n	n	n	n	n	98	78	118	80	code 0	6	34 weeks with flanks full	mild	45	normal
46	8761	n	n	n	n	n	n	n	n	n	n	n	n	n	98.2	98	110	70	code 1	6	34 weeks with flanks full	mild	45	normal
47	1383275	n	n	n	n	n	n	n	n	n	n	n	n	n	97.5	90	120	82	code 1	6	34 weeks with flanks full	mild	45	normal
48	948036	n	n	n	n	n	n	n	n	n	n	n	n	n	98.4	88	120	84	code 0	6	34 weeks with flanks full	mild	45	normal
49	1320403	n	n	n	n	n	n	n	n	n	n	n	n	n	98	88	110	80	code 2	6	34 weeks with flanks full	moderate	45	normal
50	436485	n	n	n	n	n	n	n	n	n	n	n	n	n	98.6	82	120	80	code 1	6	34 weeks with flanks full	mild	40	normal
51	500019	n	n	n	n	n	n	n	n	n	n	n	n	n	98.4	84	110	70	code 0	6	34 weeks with flanks full	moderate	45	normal
52	198960	n	n	n	n	n	n	n	n	n	n	n	n	n	97.7	86	120	70	code 1	6	34 weeks with flanks full	moderate	45	normal
53	1371697	n	n	n	n	n	n	n	n	n	n	n	n	n	98.3	88	120	80	code 1	6	34 weeks with flanks full	mild	45	normal
54	956779	n	n	n	n	n	n	n	n	n	n	n	n	n	97.4	90	110	70	code 0	6	34 weeks with flanks full	mild	40	normal
55	1385849	n	n	n	n	n	n	n	n	n	n	n	n	n	98.6	82	110	70	code 1	6	34 weeks with flanks full	mild	40	normal
56	138462	n	n	n	n	n	n	n	n	n	n	n	n	n	96.9	84	110	70	code 0	6	34 weeks with flanks full	mild	40	normal
57	9506110	n	n	n	n	n	n	n	n	n	n	n	n	n	98.4	88	120	70	code 1	6	34 weeks with flanks full	mild	40	normal
58	1100309	n	n	n	n	n	n	n	n	n	n	n	n	n	97.5	75	120	80	code 2	6	34 weeks with flanks full	mild	45	normal
59	100410	n	n	n	n	n	n	n	n	n	n	n	n	n	98.6	78	120	74	code 0	6	34 weeks with flanks full	mild	45	normal
60	460010	n	n	n	n	n	n	n	n	n	n	n	n	n	98.4	78	120	78	code 1	6	34 weeks with flanks full	mild	45	normal
61	614231	n	n	n	n	n	n	n	n	n	n	n	n	n	98.4	98	120	76	code 0	6	34 weeks with flanks full	moderate	45	normal
62	138629	n	n	n	n	n	n	n	n	n	n	n	n	n	98.6	90	120	80	code 1	6	34 weeks with flanks full	moderate	35	normal
63	140010	n	n	n	n	n	n	n	n	n	n	n	n	n	98.4	90	110	76	code 0	6	34 weeks with flanks full	good	40	normal
64	237881	n	n	n	n	n	n	n	n	n	n	n	n	n	98.2	88	110	82	code 4	6	34 weeks with flanks full	good	45	normal
65	1397420	n	n	n	n	n	n	n	n	n	n	n	n	n	98.3	82	110	70	code 0	6	34 weeks with flanks full	good	45	normal
66	1263712	n	n	n	n	n	n	n	n	n	n	n	n	n	98.1	84	120	80	code 0	6	34 weeks with flanks full	good	45	normal
67	1065795	n	n	n	n	n	n	n	n	n	n	n	n	n	98.4	86	120	72	code 1	6	34 weeks with flanks full	good	45	normal
68	231290	n	n	n	n	n	n	n	n	n	n	n	n	n	97.4	86	120	82	code 2	6	34 weeks with flanks full	good	45	normal
69	1405326	n	n	n	n	n	n	n	n	n	n	n	n	n	98.4	88	120	80	code 1	6	34 weeks with flanks full	good	45	normal
70	1326120	n	n	n	n	n	n	n	n	n	n	n	n	n	98.4	90	114	78	code 0	6	34 weeks with flanks full	good	45	normal
71	1301975	n	n	n	n	n	n	n	n	n	n	n	n	n	98.4	90	118	70	code 0	6	34 weeks with flanks full	moderate	45	normal
72	1406991	n	n	n	n	n	n	n	n	n	n	n	n	n	97.6	82	122	84	code 1	6	34 weeks with flanks full	mild	45	normal
73	190283	n	n	n	n	n	n	n	n	n	n	n	n	n	98.2	88	120	80	code 0	6	34 weeks with flanks full	mild	45	normal
74	1200977	n	n	n	n	n	n	n	n	n	n	n	n	n	98.2	78	110	70	code 1	6	34 weeks with flanks full	mild	45	normal
75	300091	n	n	n	n	n	n	n	n	n	n	n	n	n	97.8	74	120	80	code 0	6	34 weeks with flanks full	mild	40	normal
76	552638	n	n	n	n	n	n	n	n	n	n	n	n	n	98.3	76	120	80	code 1	6	34 weeks with flanks full	mild	40	normal
77	953227	n	n	n	n	n	n	n	n	n	n	n	n	n	98.2	78	120	80	code 2	6	34 weeks with flanks full	mild	45	normal
78	400908	n	n	n	n	n	n	n	n	n	n	n	n	n	98.4	78	110	80	code 0	6	34 weeks with flanks full	mild	30	normal
79	1289273	n	n	n	n	n	n	n	n	n	n	n	n	n	98.6	98	120	80	code 3	6	34 weeks with flanks full	mild	30	normal
80	1280295	n	n	n	n	n	n	n	n	n	n	n	n	n	98.3	90	120	70	code 3	6	34 weeks with flanks full	mild	35	normal
81	1470236	n	n	n	n	n	n	n	n	n	n	n	n	n	98.4	98	120	78	code 1	6	34 weeks with flanks full	mild	45	normal
82	964382	n	n	n	n	n	n	n	n	n	n	n	n	n	97	90	110	80	code 0	6	34 weeks with flanks full	mild	40	normal
83	141112	n	n	n	n	n	n	n	n	n	n	n	n	n	98	90	110	74	code 0	6	34 weeks with flanks full	mild	45	normal
84	462381	n	n	n	n	n	n	n	n	n	n	n	n	n	98.4	80	120	80	code 0	6	34 weeks with flanks full	mild	45	normal
85	140012	n	n	n	n	n	n	n	n	n	n	n	n	n	96.4	90	110	70	code 0	6	34 weeks with flanks full	mild	45	normal
86	164038	n	n	n	n	n	n	n	n	n	n	n	n	n	98.2	74	120	80	code 0	6	34 weeks with flanks full	mild	45	normal
87	130148	n	n	nn	n	n	n	n	n	n	n	n	n	n	98.4	90	110	70	code 2	6	34 weeks with flanks full	mild	45	normal
88	1245069	n	n	n	n	n	n	n	n	n	n	n	n	n	98.4	82	110	80	code 0	6	34 weeks with flanks full	mild	45	normal
89	1389007	n	n	n	n	n	n	n	n	n	n	n	n	n	97.6	84	120	80	code 4	6	34 weeks with flanks full	mild	45	normal
90	1410282	n	n	n	n	n	n	n	n	n	n	n	n	n	98.2	88	110	70	code 0	6	34 weeks with flanks full	mild	45	normal

Sr. No	MRD NO	ER-SPECULUM EXAMINATION		INVESTIGATIONS													
										USG							
		Vagina	Discharge	HVS (HIGH VAGINAL SWAB)	CRP (C-REACTIVE PROTEIN)[mg/dl]	FOLLOW-UP CRP LEVELS (IF HIGH)			HB (HAEMOGLOBIN)	TLC (TOTAL LEUCOCYTE COUNT)	GESTATIONAL AGE [weeks.days]	LIQUOR	WEIGHT OF FETUS [gms]	LIE OF FETUS	INTERNAL OS	CERVICAL LENGTH [cms]	PLACENTAL MATURITY [grade]
27	8004	normal	no	no growth	12.88	-	-	-	11	7.8	37.4	normal	2980	long	c	4.2	3
28	1257547	normal	no	no growth	13.08	-	-	-	11.2	7.8	32.3	normal	1704	long	c	4	2
29	7825	normal	no	no growth	3.09	-	-	-	11.7	5.8	32.2	normal	1607	long	c	4	2
30	181164	normal	no	no growth	9	-	-	-	11.8	3.9	36.4	normal	2682	long	c	4	3
31	136800	normal	no	no growth	6.4	-	-	-	10.7	7	32.4	normal	1696	long	c	4	2
32	352970	normal	no	no growth	3.32	-	-	-	11.4	8.9	34	normal	2197	long	c	4	2
33	106478	normal	no	e.coli	3.7	-	-	-	12.4	8.8	32.4	normal	2094	long	c	3.8	2
34	136240	normal	show	no growth	5.2	-	-	-	12.1	8.7	35.2	normal	1973	long	c	3.6	2
35	583496	normal	show	no growth	5.4	-	-	-	11.6	7.8	36.4	normal	2584	long	c	44	3
36	1367645	normal	show	no growth	16.5	-	-	-	11.4	6.7	35.6	normal	2780	long	c	4	3
37	434880	normal	no	no growth	1.98	-	-	-	11.8	5.5	35.5	normal	2699	long	c	4	2
38	468892	normal	no	no growth	4.8	-	-	-	11.4	8.3	32.4	normal	1784	long	c	3.7	2
39	463289	normal	no	no growth	4.6	-	-	-	12.5	9.3	33	normal	1704	long	c	3.8	2
40	1382981	normal	show	e.coli	3.5	-	-	-	12.1	9.1	31	normal	1676	long	c	4	1
41	1261305	normal	show	e.coli	2.14	-	-	-	12.4	8.1	33.6	normal	1895	long	c	3.9	1
42	1274072	normal	no	no growth	0.1	-	-	-	12.4	9	33.4	normal	2186	long	c	3.8	2
43	143434	normal	no	no growth	7.8	-	-	-	12.4	8.8	35.4	normal	2013	long	c	4	2
44	1200167	normal	no	k. pneumoniae	1.9	-	-	-	12	7.7	36	normal	2782	long	c	4	3
45	46840	normal	no	no growth	4.6	-	-	-	12	6.6	32.5	normal	1493	long	c	4	2
46	8761	normal	no	no growth	2.62	-	-	-	12	6.5	32.5	normal	1500	long	c	4	2
47	1383275	normal	no	no growth	4.93	-	-	-	13	8	33.3	normal	2275	long	c	4	2
48	948036	normal	no	no growth	3.29	-	-	-	12	8.1	33	normal	2120	long	c	4	1
49	1320403	normal	no	no growth	1.72	-	-	-	11	8.2	35.1	normal	2557	long	c	4	2
50	436485	normal	no	no growth	1.6	-	-	-	11	8.3	32	normal	1674	long	c	4	2
51	500019	normal	no	no growth	2.01	-	-	-	11	8.4	35	normal	1949	long	c	3.8	1
52	198960	normal	no	no growth	6.4	-	-	-	10.9	8.5	36.6	normal	2969	long	c	3.9	3
53	1371697	normal	no	no growth	6.99	5.4	-	-	11.7	8.6	37.5	normal	3140	long	c	4.1	3
54	956779	normal	no	no growth	3.6	-	-	-	11.6	8.7	36.6	normal	2964	long	c	4	3
55	1385849	normal	no	no growth	18.13	16.4	-	-	11.5	8.8	34	normal	2075	long	c	4	2
56	138462	normal	no	no growth	5.4	-	-	-	11.4	8.9	33	normal	1714	long	c	4	2
57	9506110	normal	no	no growth	4.3	-	-	-	11.4	6.4	34	normal	1947	long	c	4	2
58	1100309	normal	no	no growth	4.8	-	-	-	11.3	6.3	33.2	normal	1914	long	c	3.9	2
59	100410	normal	no	no growth	4.8	-	-	-	11.4	6.2	33.2	normal	1916	long	c	3.7	2
60	460010	normal	no	no growth	4.3	-	-	-	11.1	6.1	34	normal	2130	long	c	4	2
61	614231	normal	show	no growth	4.6	-	-	-	11.2	7.8	33.6	normal	1916	long	c	4	2
62	138629	normal	show	e.coli	9.8	-	-	-	11.3	10.4	34.3	normal	1984	long	c	4	2
63	140010	normal	show	no growth	4.6	-	-	-	11.4	12.5	33.2	normal	1916	long	c	3.9	2
64	237881	normal	show	e.coli	12.16	-	-	-	11.5	11.4	37.4	normal	3090	long	c	3.8	3
65	1397420	normal	show	no growth	0.6	-	-	-	11.6	11.4	34	normal	1917	long	c	4	2
66	1263712	normal	show	no growth	4.6	-	-	-	11.7	12.4	33	normal	1617	long	c	3.7	2
67	1065795	normal	show	k. pneumoniae	2.03	-	-	-	11.8	9	32.3	normal	1614	long	c	4	2
68	231290	normal	show	no growth	5.76	-	-	-	11.9	4.8	37.4	normal	3182	long	c	3.8	2
69	1405326	normal	no	no growth	22.22	-	-	-	12.4	7.5	33.4	normal	1830	long	c	3.8	2
70	1326120	normal	no	no growth	0.1	-	-	-	12.9	9.8	32.2	normal	1618	long	c	4	1
71	1301975	normal	no	no growth	9.4	-	-	-	11	12.4	34.4	normal	2394	long	c	4	2
72	1406991	normal	no	no growth	29.91	-	-	-	12.6	11.6	35.5	normal	2704	long	c	4	2
73	190283	normal	no	no growth	0.6	-	-	-	12.5	9.4	32	normal	1715	long	c	4	2
74	1200977	normal	no	no growth	4.8	-	-	-	12.5	7.8	31.6	normal	1617	long	c	4	1
75	300091	normal	no	no growth	2.6	-	-	-	12.3	4.8	31.6	normal	1416	long	c	4	1
76	552638	normal	no	no growth	4.5	-	-	-	12.3	6.7	37	normal	3041	long	c	4	3
77	953227	normal	no	no growth	3.3	-	-	-	12.1	5.9	32.1	normal	1714	long	c	4	2
78	400908	normal	no	no growth	6.4	-	-	-	13	4.8	32.5	normal	1997	long	c	4	2
79	1289273	normal	no	e.coli	3.62	-	-	-	12.8	4.1	37	normal	3015	long	c	4	3
80	1280295	normal	no	e.coli	2.13	-	-	-	12.6	4	34.5	normal	2471	long	c	4	2
81	1470236	normal	no	no growth	6.2	-	-	-	12.4	3.9	35.4	normal	2510	long	c	3.8	2
82	964382	normal	no	no growth	5.2	-	-	-	12.2	7.4	32.6	normal	1464	long	c	4	2
83	141112	normal	no	no growth	4.8	-	-	-	12	7.8	35.2	normal	1823	long	c	4	2
84	462381	normal	no	no growth	1.6	-	-	-	11.8	9.8	32.6	normal	1617	long	c	4.1	2
85	140012	normal	no	no growth	1.2	-	-	-	11.2	5.9	32.1	normal	1614	long	c	4	2
86	164038	normal	no	no growth	5.2	-	-	-	11.4	5.4	37	normal	2958	long	c	4	2
87	130148	normal	show	no growth	4.8	-	-	-	11.6	4.5	35	normal	2416	long	c	4	2
88	1245069	normal	no	no growth	0.53	-	-	-	11.4	7.8	33.3	normal	1993	long	c	4	2
89	1389007	normal	no	staph hemolyticus	7.04	-	-	-	11.2	3.8	36.4	normal	2410	long	c	4	2
90	1410282	normal	no	no growth	2.11	-	-	-	10.4	5.7	37.4	normal	2376	long	c	4	3

Sr. No	MRD NO	NAME	AGE [yrs]	EDUCATION	SOCIO- ECONOMIC CLASS	OCCUPATION	OBSTETRIC H/O THE PATIENT							CHEIF COMPLAINTS									
							AGE OF MARRIAGE [yrs]	LMP	EDD	ANTE-NATAL CARE	GESTATIONAL AGE [weeks.days]	OBSTETRIC FORMULA	OBSTETRIC HISTORY	PAIN	DURATION {HRS}	INTENSITY	ONSET	TRIGGERING FACTORS			H/O ABORTION	BLEEDING GUMS	PRE-TERM LABOUR
																		COITUS	TRAUMA	TRAVEL			
91	1409074	EC	29	graduation	lower middle class	working	27	18-02-22	25-11-22	booked	37.2	G1	primigravida	yes	14	-	gradual	n	n	n	n	n	n
92	1412859	SA	22	post graduation	upper middle class	working	20	08-03-22	13-12-22	booked	37.3	G1	primigravida	yes	12	-	gradual	n	n	n	n	n	n
93	143822	KJ	27	graduation	upper middle class	housewife	25	25-02-22	02-12-22	unbooked	39	G1	primigravida	yes	2	-	gradual	n	n	n	n	n	n
94	600009	SC	31	post graduation	upper middle class	working	29	07-03-22	12-12-22	booked	37.4	G2P1L1	multigravida	yes	10	-	gradual	n	n	n	n	n	n
95	141100	SR	27	secondary	lower middle class	working	25	07-03-22	12-12-22	booked	37.4	G1	primigravida	yes	2	-	gradual	n	n	n	n	n	n
96	162062	HB	28	graduation	upper middle class	housewife	22	04-03-22	09-12-22	booked	38	G3P1L1A1	primigravida	yes	4	-	gradual	n	n	n	n	n	n
97	59848	JP	30	post graduation	upper middle class	working	22	25-02-22	02-12-22	booked	39	G3P1L1A1	multigravida	yes	8	-	gradual	n	n	n	n	n	n
98	160004	HR	28	graduation	lower middle class	housewife	24	09-03-22	14-12-22	unbooked	37.2	G2P1L1	multigravida	yes	10	-	gradual	n	n	n	n	n	n
99	123098	RM	32	graduation	lower middle class	housewife	22	06-03-22	11-12-22	unbooked	37.5	G3P2L2	multigravida	yes	12	-	gradual	n	n	n	n	n	n
100	1421717	JS	30	graduation	upper middle class	working	24	03-03-22	08-12-22	booked	39.4	G1	primigravida	yes	14	-	gradual	n	n	n	n	n	n

Sr. No	MRD NO	PAST HISTORY													GENERAL EXAMINATION	PULSE [bpm]	BLOOD PRESSURE		ORO-DENTAL EXAMINATION		ABDOMINAL EXAMINATION			PI E
		TOOTHACHE	PRE-TERM BIRTH	TOOTH EXTRACTION	CERVICAL SURGERY	ANAEMIA	D N C	DIABETES	PID	HEART DISEASE	CHRONIC VAGINAL DISCHARGE	HYPERTENSION	PIH	OTHER	TEMPERATURE [°F]		SBP [mmHg]	DBP [mmHg]	CPITN INDEX The ten specified 17 16 11 26 27 47 46 31 36 37 Examined six	Surfaces examined are	Fundal Height [weeks]	Intensity	Duration [secs]	Cervix
91	1409074	n	n	n	n	n	n	n	n	n	n	n	n	n	98.6	98	120	70	code 0	6	34 weeks with flanks full	mild	45	normal
92	1412859	n	n	n	n	n	n	n	n	n	n	n	n	n	98.2	88	120	80	code 0	6	34 weeks with flanks full	mild	40	normal
93	143822	n	n	n	n	n	n	n	n	n	n	n	n	n	98	86	110	80	code 0	6	34 weeks with flanks full	mild	35	normal
94	600009	n	n	n	n	n	n	n	n	n	n	n	n	n	97	98	120	80	code 3	6	34 weeks with flanks full	mild	45	normal
95	141100	n	n	n	n	n	n	n	n	n	n	n	n	n	97	88	110	80	code 2	6	34 weeks with flanks full	mild	40	normal
96	162062	n	n	n	n	n	n	n	n	n	n	n	n	n	98	70	120	70	code 0	6	34 weeks with flanks full	moderate	40	normal
97	59848	n	n	n	n	n	n	n	n	n	n	n	n	n	97	70	110	80	code 0	6	34 weeks with flanks full	mild	40	normal
98	160004	n	n	n	n	n	n	n	n	n	n	n	n	n	98	80	120	70	code 3	6	34 weeks with flanks full	mild	40	normal
99	123098	n	n	n	n	n	n	n	n	n	n	n	n	n	98.6	90	120	70	code 2	6	34 weeks with flanks full	mild	45	normal
100	1421717	n	n	n	n	n	n	n	n	n	n	n	n	n	98.4	90	120	70	code 0	6	34 weeks with flanks full	mild	40	normal

Sr. No	MRD NO	ER-SPECULUM EXAMINATION		INVESTIGATIONS												
										USG						
		Vagina	Discharge	HVS (HIGH VAGINAL SWAB)	CRP (C-REACTIVE PROTEIN)[mg/dl]	FOLLOW-UP CRP LEVELS (IF HIGH)			HB (HAEMOGLOBIN)	TLC (TOTAL LEUCOCYTE COUNT)	GESTATIONAL AGE [weeks.days]	LIQUOR	WEIGHT OF FETUS [gms]	LIE OF FETUS	INTERNAL OS	CERVICAL LENGTH [cms]	PLACENTAL MATURITY [grade]
91	1409074	normal	no	no growth	2.11	-	-	-	11.4	3.8	36.4	normal	2876	long	c	4	3
92	1412859	normal	no	no growth	2.53	-	-	-	12.4	6.7	36.5	normal	2995	long	c	4	2
93	143822	normal	no	no growth	1.9	-	-	-	11.3	6.7	33.4	normal	1814	long	c	4	2
94	600009	normal	no	e.coli, k. pneumoniae	9.4	-	-	-	12.4	8.5	36	normal	2789	long	c	3.7	3
95	141100	normal	no	no growth	2.8	-	-	-	12.4	8.7	32	normal	1714	long	c	4	2
96	162062	normal	no	no growth	4.8	-	-	-	10.9	7.8	34.2	normal	1914	long	c	4	2
97	59848	normal	no	no growth	8.6	-	-	-	12.4	5.7	34.5	normal	2014	long	c	4	2
98	160004	normal	no	k. pneumoniae, p.mirabilis	4.6	-	-	-	11.8	5.8	33.4	normal	1918	long	c	4	2
99	123098	normal	no	e.coli	4.8	-	-	-	11.8	5.7	36	normal	2555	long	c	4	3
100	1421717	normal	show	no growth	6.4	-	-	-	12.4	4.8	32	normal	1614	long	c	4	1

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(34)

No. BFUHS/2K21p-TH/ 147

Date 05/11/22

The Principal,
DMC, Ludhiana.

Subject: **Approval of Plan of Thesis.**

This is to inform you that the Faculty of Medical Sciences in its meeting held on 29.10.2021 has approved the plan of thesis of **Amandeep Kaur**, a student of your college for **MD Obstetrics & Gynaecology** along with the names of Supervisor/Co-Supervisor as under:-

Topic Plan of Thesis

To determine the prevalence of periodontitis, bacterial vaginosis in women with pre-term labour and their correlation with crp [c-reactive protein] levels.

Supervisor
Dr. Shweta Gupta
Prof.,
Dept. of Obst. & Gynae.,
DMCH, Ludhiana.

Co-Supervisor

Dr. Namita Buddhiraja
Prof. & Head,
Dept. of Dentistry,
DMCH, Ludhiana.

Dr. Sunil Kumar Juneja
Prof.,
Dept. of Obst. & Gynae.,
DMCH, Ludhiana.

The student has to submit the four copies of thesis (along with PDF format) , to the Controller of Examinations, BFUHS, Faridkot, at least six months before the commencement of theory examination, if he/she is otherwise eligible to take the examination. He /She must directed to attach a photocopy of this letter with the forwarding letter while submitting thesis to the University along with the letter of approval of University for change of supervisor/Co-Supervisor, change of topic,(if any).

Dr. S P Singh MS(Oph)
Controller of Examinations

Note :

71. If any discrepancy found regarding topic of thesis or Supervisor/Co-Supervisor, inform undersigned within one month after issue of this letter.

72. The student may submit the thesis as per the schedule already conveyed i.e for May/June examination 30th Nov of the preceding the year of examination and for Nov/Dec examinations 31st May of the year of examination.

TO DETERMINE THE PREVALENCE OF PERIODONTITIS, BACTERIAL VAGINOSIS IN WOMEN WITH PRE-TERM LABOUR AND THEIR CORRELATION WITH CRP [C-REACTIVE PROTEIN] LEVELS

THESIS PROPOSAL

FOR APPROVAL OF SUBJECT OF THESIS TO BE SUBMITTED

IN PARTIAL FULFILMENT OF THE REQUIREMENTS

FOR THE DEGREE OF

DOCTOR OF MEDICINE

DEPARTMENT OF OBSTETRICS AND GYNAECLOGY

OF

BABA FARID UNIVERSITY OF HEALTH SCIENCES

FARIDKOT

March, 2021

DR. AMANDEEP KAUR

DEPARTMENT OF OBSTETRICS AND GYNAECOLOGY

DAYANAND MEDICAL COLLEGE AND HOSPITAL

LUDHIANA

ABSTRACT OF PLAN OF THESIS

Title	TO DETERMINE THE PREVALENCE OF PERIODONTITIS, BACTERIAL VAGINOSIS IN WOMEN WITH PRE-TERM LABOUR AND THEIR CORRELATION WITH CRP [C-REACTIVE PROTEIN] LEVELS.
For the degree of	OBSTETRICS AND GYNAECOLOGY
Name of the candidate	DR. AMANDEEP KAUR
Supervisor	Dr. Shweta Gupta, Professor, Department of Obstetrics and Gynaecology, DMC&H Ludhiana
Co-supervisor	Dr. Namita Buddhiraja, Professor and Head of Department of Dentistry, DMC&H Ludhiana Dr. Sunil Kumar Juneja, Professor of Department of obstetrics and Gynaecology, DMC&H Ludhiana
Institution	Dayanand Medical College & Hospital, Ludhiana
University	Baba Farid University of Health Sciences, Faridkot

Introduction: A birth is considered premature if the fetus is born in between viability period to 37 weeks of gestation. It represents major public health problem because of associated perinatal morbidity and mortality. Infectious conditions like periodontitis, bacterial vaginosis can lead to its increasing incidence. CRP is an acute phase reactant which may increase in these infectious conditions and can aid in their diagnosis and follow-up.

Aim of Study: To study the prevalence of periodontitis, bacterial vaginosis in women with preterm labour. To investigate whether CRP is the possible mediator of the association between periodontitis, bacterial vaginosis and preterm labour.

Materials & methods: This will be a cross-sectional study . Women presenting with the pre-term labour will be taken as cases and examined for presence of periodontitis , bacterial vaginosis and women at term will be taken as controls and examined . CRP levels will be measured in both cases and controls.

Clinical Significance:

Pre-term birth is a challenging condition in the field of obstetrics. Prevalence of periodontitis & bacterial vaginosis in women with preterm labour would be known. Antenatal women can be screened for these conditions and can be treated before the onset of preterm labour. Correlation of CRP levels to periodontitis , bacterial vaginosis and preterm labour would be determined and compared to the normal pregnancies at term.

KEYWORDS: Pre-term labour, periodontitis, bacterial vaginosis, C-reactive protein levels.

(Signature) Candidate | (Signature) Co-supervisor | (Signature) Co-supervisor | (Signature) Supervisor | (Signature) Principal

CERTIFICATE OF FACILITIES AVAILABLE

This is to certify that the facilities for work on the subject of thesis titled **"To determine the prevalence of periodontitis, bacterial vaginosis in women with pre-term labour and their correlation with CRP [C-reactive protein] levels"** Department of obstetrics and gynaecology, DMC&H, Ludhiana and will be provided to be candidate. We will see that the data being included in the thesis are genuine and is collected by the candidate himself under our supervision and guidance.

Supervisor

Dr Shweta Gupta
Professor,
Department of obstetrics and gynaecology ,
DMC&H, Ludhiana.

Co-Supervisor(s)

Dr Namita Buddhiraja
Professor and Head,
Department of Dentistry,
DMC&H, Ludhiana

Dr Sunil Kumar Juneja
Professor,
Department of Obstetrics and Gynaecology,
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HEAD OF DEPARTMENT

Dr. Ashima Taneja
Professor and Head,Department of obstetrics and Gynaecology,
DMCH, Ludhiana.

Place: Ludhiana

Date: 16/3/2021

APPROVAL PROFORMA
BY RESEARCH & ETHICAL COMMITTEE
DAYANAND MEDICAL COLLEGE & HOSPITAL, LUDHIANA

Name of candidate	Dr. Amandeep kaur
Department	Obstetrics and Gynaecology
Topic of Thesis	To determine the prevalence of periodontitis, bacterial vaginosis in women with pre-term labour and their correlation with CRP [c-reactive protein] levels.
Likely date of appearing in PG examination	MAY 2023
Date of enrollment	25th July 2020
Name of Head of Department	Dr. Ashima Taneja
1) Supervisor **2) Co-Supervisor**	Dr. Shweta Gupta Dr. Namita Buddhiraja Dr. Sunil Kumar Juneja
Signature of Members of Research Committee with Stamp	**Signature of Members of Ethics Committee with Stamp**
Dr. Harpreet Kaur (Professor & Head, Pathology)	Mr. R K Sharma (Legal Expert)
Dr. Jaspal Singh (Professor & Head, Surgery)	Dr. Ramit Mahajan (Associate Professor, Gastroenterology)
Dr. Dinesh Gupta (Professor & Head, Medicine)	Dr. Anu Sharma (Professor, Anatomy)
Dr. Sandeep Kaushal (Dean Academics & Professor & Head, Pharmacology)	Dr. Sandeep Kaushal (Dean Academics & Professor & Head, Pharmacology)
Dr. Gurpreet S Wander (Vice Principal)	Dr. Gurpreet S Wander (Vice Principal & Professor & Head, Cardiology)
	Dr. Gagandeep Singh (Secretary, Ethics Committee Professor & Head, Neurology)

Approved: Yes / No

Dr. Sandeep Puri
Chairperson
Research Committee

Approved: Yes / ~~No~~

Prof. Arvind Malhotra
Chairperson
Ethics Committee

BABA FARID UNIVERSITY OF HEALTH SCIENCES, FARIDKOT

PROFORMA FOR REGISTRATION OF SUBJECT FOR DISSERTATION

1	NAME OF THE CANDIDATE AND ADDRESS	DR. AMANDEEP KAUR VPO SHERPUR, NEAR POST OFFICE, GREWAL PATTI, TEHSIL DHURI, DISTRICT SANGRUR
2	NAME OF THE INSTITUTE	DAYANAND MEDICAL COLLEGE AND HOSPITAL, LUDHIANA
3	COURSE OF STUDY AND SUBJECT	MD OBSTETRICS AND GYNAECOLOGY
4	DATE OF ADMISSION OF COURSE	25th JULY 2020
5	TITLE OF THE TOPIC	TO DETERMINE THE PREVALENCE OF PERIODONTITIS, BACTERIAL VAGINOSIS IN WOMEN WITH PRE-TERM LABOUR AND THEIR CORRELATION WITH CRP [C-REACTIVE PROTEIN] LEVELS.

6. BRIEF RESUME OF THE INTENDED WORK

6.1 NEED FOR THE STUDY

Preterm birth complicates 12% of all births. A birth is considered premature if the fetus is born in between viability period to 37 weeks of gestation. Preterm labor and low birth weight represent major public health problems because of their associated morbidity and mortality, economic burden and long term disability. The weight of the fetus at birth is one of the most important variables as far as the survival, growth and healthy development of the child is concerned[1].

In case of premature birth, the baby`s vital organs are immature and incapable of readily adapting to the start of life outside the uterus[2].

There are so many established risk factors associated with preterm labour and preterm birth. In spite of this, it is estimated that 50% of the preterm labour and preterm birth cases are idiopathic. This fact in itself justifies the need for further studies to identify the causes and risk factors that lead to onset of preterm labour[3-4].

Periodontitis is a gram negative, anaerobic infection of the oral cavity which results in degradation of the bones and connective tissue which support the teeth. The destruction of these supporting structures involves both direct tissue damage caused by bacterial products, and indirect damage caused by the endotoxins and cytokines which appear in the crevicular fluid as part of the host's immune response[5].

While periodontitis affects upto 50% population, there is a relatively high incidence of periodontitis among pregnant women[6].

Haematogenous dissemination of inflammatory products like local inflammatory cytokine and mediators such as prostaglandins (PGE2) caused by endotoxin and lipopolysaccharide release from periodontitis related organisms could cause increase in systemic inflammatory mediators.[7] Hematogenous spread of periodontal disease related organisms may cause decidual and chorioamniotic infections which also induce an inflammatory responses[8].

Bacterial vaginosis is a polymicrobial imbalance of genital tract flora which occurs in approximately 15% of pregnancies.[9] Bacterial vaginosis is associated with a decrease in the quantity and quality of

lactobacilli which constitute normal flora and increase in pathogenic organism which cause a foul smelling vaginal discharge and also causes their ascending colonization through cervix to the amniotic fluid, fetomaternal membranes, decidua and placenta.[10-12]

Many of the substances produced by bacterial vaginosis related organisms which include endotoxins and enzymes such as sialidase, collagenase, protease, elastase, phospholipase and mucinase, have been shown to cause tissue damage and release of pro inflammatory cytokines and prostaglandins (IL1,6,8, PGE2, PGF2alpha).[13]

Since CRP is an acute phase reactant produced by liver in response to diverse inflammatory stimuli, these pro-inflammatory cytokines stimulates the release of CRP into circulation from the liver, so it is used as an indicator to recognize the infection. CRP is a marker for inflammation and infection.[14]

In normal labour the release of prostaglandins occurs, which ripen the cervix, change membrane structure, and cause myometrial contractions and result in labour. Periodontitis and bacterial vaginosis are the inflammatory conditions which causes preterm rise in all these pro-inflammatory mediators which would result in premature initiation of labour leading to preterm birth.

So if we know the prevalence of periodontitis and bacterial vaginosis in preterm labour , we can look for their presence in routine antenatal checkups. Screening of antenatal women in second trimester for periodontitis and bacterial vaginosis would lead to management of the cases before the onset of preterm labour. Correlation of CRP with the periodontitis and bacterial vaginosis can aid in the diagnosis and follow up if high.

6.2 REVIEW OF LITERATURE

Christopher Pretorius et al in study (2007) stated that spontaneous preterm labour leading to pre term birth is a major cause of perinatal morbidity and mortality worldwide. The etiology of spontaneous preterm labour is multifactorial but there is overwhelming evidence to implicate infection in upto 40% cases. Periodontal disease and bacterial vaginosis may be risk factors in their own rights or may be inter-relative.[15]

Alessandra Neves Guimaraes et al conducted a study (2009) at alcala university of spain, on maternal periodontal disease and preterm or extreme preterm birth and found the periodontal disease is associated with premature and extremely premature birth.[16]

Sindhu K. Srinivas and Samuel Parry conducted a study (2012) at university of Pennsylvania health system, stated that maternal periodontal disease is a highly prevalent condition that has been studied extensively in relation to adverse pregnancy outcomes including pre term delivery, pre-eclampsia and low birth weight. Investigators speculate that hematogenous transport of bacteria and /or pro-inflammatory mediators from sites of periodontal infection into the placenta, fetal membranes and amniotic cavity induces pathological processes that lead to these adverse outcomes. Preliminary observational studies support this hypothesis.[17]

L.A. Daalderop et al conducted a study (2017) on periodontal disease and pregnancy outcomes. This study highlights that periodontal disease is an important risk factor for several common adverse pregnancy outcomes.[18]

Camila Barreto Barbieri et al in a study (2020) on periodontal disease and its relationship with pregnancy problems stated that elevated levels of cytokines produced by periodontal disease, induce the body to go into early labour. Current evidence has pointed out that women in gestational periods need dental interventions to control periodontal disease, as these strategies serve to reduce preterm labor.[19]

Satheesh mannen et al conducted a study (2011) to evaluate association between maternal periodontitis and preterm delivery or low

birth weight and concluded a noticeable relationship between periodontal health and duration of pregnancy; periodontal disease could be a risk factor for preterm labour.[20]

Usin et al. reported that the presence of periodontal pathogens in periodontal pockets from pregnant women with different periodontal status was only associated with PLBW infants for young mothers.[21]

Lindita Yzeiraj-Kalemaj et al conducted a study (2013) at Albania on Bacterial vaginosis, educational level of pregnanat women and preterm birth. The study showed a significant correlation between bacterial vaginosis and preterm labour. Bacterial vaginosis seems to be an independent risk factor. In the study group, the prevalence of bacterial vaginosis was 32%, whereas in control group, the figure was 14.6%. Highly risked group for a preterm birth activity such as pregnant women presenting with bacterial vaginosis and a low educational level has to be followed up and eventually trearted cautiously in order to avoid early and late complications of preterm delivery.[22]

Dr Renu jain et al conducted a study (2016) to know role of bacterial vaginosis in preterm labour and stated that bacterial vaginosis in pregnancy is associated with adverse pregnancy outcome including preterm labour, low birth weight and puerperal sepsis. Thus screening for bacterial vaginosis in all pregnant women complaining of vaginal discharge and also in all patients with preterm labour is justified.[23]

Masao Shimaoka et al studied (2019) an association between preterm labour and bacterial vaginosis with or without treatment by retrospective study. The study showed that the treated group has a less number of preterm labour cases as compared to the untreated group.[24]

S Guaschino et al conducted a study on Aetiology of preterm labour: bacterial vaginosis. The results of treatment trials for pregnant women with BV have been heterogeneous, with anywhere from an 80% reduction to a two-fold increase in preterm birth among women who received treatment. For this reason, in current clinical practice significant controversy surrounds determining not only who and when to screen but also who and how to treat. Recent evidence shows that

individual genetic backgrounds can affect chemokine production. This is an interesting area for future research and could lead to trials of treatment only for women genetically predisposed to preterm birth.[25]

Waseeqa Nigeen et al studied correlation of bacterial vaginosis with preterm labour at Department of Obstetrics & Gynaecology, Government Medical College, Srinagar, J & K and found that among all women enrolled 94 had bacterial vaginosis. The overall prevalence of bacterial vaginosis in both groups combined was 31.33%. It was 42% in cases and 26% in controls. Bacterial vaginosis is significantly more prevalent in women with preterm labour. Whiff test can be used alone in centres where the patient load is too high. Illiteracy is a risk factor that can be modified to bring down incidence of bacterial vaginosis.[26]

Vida Modares Najed et al conducted a study (2008) to determine the relationship between bacterial vaginosis and preterm labour and results have shown that in study group 25% of subjects with preterm labour had bacterial vaginosis while in control group only 11.3% had symptoms of bacterial vaginosis and concluded that bacterial vaginosis can induce preterm labour, therefore screening of high risk women for bacterial vaginosis is highly recommended. This study proves the association of bacterial vaginosis and preterm labour. Since preterm labour is one of the important health problems and neonates mortality and morbidity rates are among indices used for comparing health care systems , bacterial vaginosis as one of the causative factors of preterm abour deserves more attention. Previous studies have shown that vaginitis and cervicitis may have important role in preterm labour, and this can be prevented.[27]

Chembetei Kavitha Kiran et al conducted a study(2017) at 1Department of Obstetrics and Gynecology, 2Department of Microbiology, Narayana Medical College, Nellore, Andhra Pradesh, India and concluded that Among the multiple causes of perinatal mortality and morbidity, in industrial countries the greatest cause is preterm labour. The complications of preterm birth cause approximately 70% of neonatal deaths and half of all neurological morbidity. Presence of intra uterine infections is one of the important

risk factors for preterm labour. Most of the studies on detection of causes of preterm birth and labour focused on microbial infections of the amniotic cavity and found the common route of infection is ascending route. The study clearly demonstrates significant association of preterm labour with bacterial vaginosis. Therefore, the screening for bacterial vaginosis as a routine during pregnancy and its prompt treatment may reduce the risk of preterm labour. This will also go a long way in the prevention of neonatal complications due to prematurity. [28]

P.R. Ganesh et al conducted a study (2015) at TN Government Dental College, Chennai on association between periodontitis, prematurity, low birth weight and CRP levels. The study conducted during a one year period from amongst the post-natal women who delivered an infant before 37 weeks gestation (study group) and after 37 weeks gestation (control group) selected on 1:1 ratio. Both groups showed a significantly greater number of mothers with generalized chronic periodontitis in the case group than in control group. The study concluded that there is a significant association between periodontits and preterm labour and a significant correlation between increased CRP levels, increasing severity of periodontitis and prematurity.

As periodontitis is a treatable disease, prematurity can be prevented with early diagnosis and management.[29]

6.3 AIMS AND OBJECTIVES OF THE STUDY

1. To study the prevalence of periodontitis and bacterial vaginosis in women with preterm labour.
2. To investigate whether CRP is the possible mediator of the association between periodontitis, bacterial vaginosis and preterm labour.

7.0 MATERIALS AND METHODS

7.1 SOURCE OF DATA

A hospital based case control clinical study will be conducted on randomly selected patients between 28-37 weeks period of gestation in the department of obstetrics and gynaecology at Dayanand Medical College And Hospital, Ludhiana , a tertiary care hospital.

7.2 METHOD OF COLLECTION OF DATA

Inclusion Criterion:

1. Primiparous/multiparous women who are at 26-37 weeks of gestation with pre-term labour (Cases).
2. Primiparous/ multiparous women who have completed 37 weeks of gestation (Controls).

Exclusion Criterion:

1. Women with genitourinary tract infections except bacterial vaginosis.
2. Medical/surgical illness like hypertension, diabetes, pulmonary and renal disease, GIT problems which might predispose to preterm labour.
3. Women who had therapeutic induction of labour.
4. Women who are with multiple fetuses, women with h/o of PID, uterine malformations, uterine surgery, previous h/o of pre term birth, chronic vaginal discharge, previous h/o dental infections, tooth extraction , bleeding gums.

Duration of Study: 12-18 months

Sample Size: 100 cases, 100 controls

Methodology: 100 cases and 100 controls will be taken subjected to thorough clinical examination by relevant investigations.

Cases: Antenatal females at 28-37 weeks of gestation presenting in OPD and IPD with complaint of preterm labour.

Investigations to be done are:

1. Dental examination for periodontitis using CPITN (Community Periodontal Index of Treatment Needs) Index.

2. HVS [high vaginal swab]

3. Blood CRP [C-Reactive protein]

Control: Antenatal females with >37 week of gestation with

1. No history of pre-term labour in current pregnancy.
2. No history of vaginal infection.
3. No history of oro-dental infection**.**

Outcome:

The outcome of our study will be to find out the prevalence of periodontitis and bacterial vaginosis in preterm labour and correlation of crp levels with these conditions.

Statistical Analysis:

Data will be described in terms of range; mean ± standard deviation (± SD), frequencies (number of cases) and relative frequencies (percentages) as appropriate. Comparison of quantitative variables between the study groups will be done using Student t-test and Mann Whitney U test for independent samples for parametric and non-parametric data respectively. For comparing categorical data, Chi square ($\chi 2$) test will be performed and exact test was used when the expected frequency is less than 5. A probability value (p value) less than 0.05 will be considered statistically significant. All statistical calculations will be done using (Statistical Package for the Social Science) SPSS 21version (SPSS Inc., Chicago, IL, USA) statistical program for Microsoft Windows.

7.3 DOES THE STUDY REQUIRE ANY INVESTIGATIONS OR INTERVENTIONS TO BE CONDUCTED ON PATIENTS OR OTHER HUMANS OR ANIMALS? IF SO, PLEASE DESCRIBE BRIEFLY.

1. Dental examination using CPITN (Community Periodontal Index of Treatment Needs) Index.
2. High vaginal swab.
3. Blood C-reactive protein levels.

7.4 HAS ETHICAL CLEARANCE BEEN OBTAINED FROM YOUR INSTITUTION IN CASE OF 7.3?

Yes, attached along with.

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PROFORMA

Sr. No.

NAME MRD NO. AGE:

EDUCATION: SOCIO- ECONOMIC CLASS:

HUSBAND's NAME:

ADDRESS:

OCCUPATION: DATE OF ADMISSION

OBSTETRIC H/O THE PATIENT

AGE OF MARRIAGE: LMP: EDD:

GESTATIONAL AGE: OBSTETRIC FORMULA:

OBSTETRIC HISTORY:

CHEIF COMPLAINTS:

1. PAIN

DURATION: INTENSITY: ONSET:

TRIGGERING FACTORS: COITUS –

TRAUMA-

TRAVEL-

PAST HISTORY

H/O ABORTION	BLEEDING GUMS
PRE-TERM LABOUR	TOOTHACHE
PRE-TERM BIRTH	TOOTH EXTRACTION
CERVICAL SURGERY	ANAEMIA
D N C	DIABETES
PID	HEART DISEASE
CHRONIC VAGINAL DISCHARGE	HYPERTENSION
PIH	OTHER

EXAMINATION:

GENERAL EXAMINATION-

TEMPERATURE: PULSE: BLOOD PRESSURE:

Signature of Candidate

Signature of Supervisor

ORO-DENTAL EXAMINATION

a) CPITN INDEX [COMMUNITY PERIODONTAL INDEX OF TREATMENT NEEDS]

The ten specified index teeth are:

17	16	11	26	27
47	46	31	36	37

Selected six teeth are:

b) Surfaces examined are:

CPI TN Score

ABDOMINAL EXAMINATION

Fundal Height

Contractions:

Frequency **Intensity** **Duration**

PER-SPECULUM EXAMINATION

Cervix **Vagina** **Discharge**

BODY MASS INDEX

INVESTIGATIONS

1. HVS(HIGH VAGINAL SWAB)
2. CRP(C-REACTIVE PROTEIN)
3. FOLLOW-UP CRP LEVELS (IF HIGH)

Date	Date	Date
a)	b)	c)

4. HB (HEMOGRAM)
5. TLC(TOTAL LEUCOCYTE COUNT)
6. USG-

GESTATIONAL AGE LIQUOR WEIGHT OF FETUS

LIE OF FETUS INTERNAL OS

CERVICAL LENGTH PLACENTAL MATURITY

Signature of Candidate **Signature of Supervisor**

INFORMED PATIENT CONSENT

Date: _____

I.....D/o, W/o, S/o.....
.....am willing to participate in the study "**To determine the prevalence of periodontitis, bacterial vaginosis in women with pre-term labour and their correlation with c-reactive protein levels**" . The procedure with its complications has been explained to me in local vernacular language. I have fully understood that no special tests and extra expenditure in any form, merely for the purpose of thesis is being carried out. I am free to opt out the study any time without assigning any reason.

....
Signature of the Witness Signature of the patient

Name:

Signature of Candidate **Signature of Supervisor**

मरीज अनुमति फार्म

तिथि _____

मैं _____ पत्नी/पुत्र/पुत्री _____

निवासी _____

इस शोधकार्य "**To determine the prevalence of periodontitis, bacterial vaginosis in women with pre-term labour and their correlation with c-reactive protein levels**" में भाग लेने के लिए सहमत हूँ। मैं इस शोधकार्य में भाग लेने के लिए अपनी स्वेच्छा से तैयार हूँ। मैं पुष्टि करता/करती हूँ की यह स्वीकृति देने के लिए मुझे कोई आर्थिक प्रलोभन नहीं दिया गया और न ही दबाव डाला गया है। मुझे इस शोधकार्य का उद्देश्य स्पष्ट कर दिया गया है और मुझे यह विश्वास है की यह विज्ञान और मानवता के लाभ के लिए है। मुझे इस शोधकार्य में होने वाले जोखिम के बारे में समझा दिया गया है और मेरी समझ में यह जोखिम बहुत मामुली है।

मैं इस शोधकार्य में भाग लेने के सम्बन्ध में किसी भी समय अपनी अस्वीकृति व्यक्त कर सकता/सकती हूँ और मेरे अस्वीकृति व्यक्त करने का मेरे इलाज पर कोई प्रभाव नहीं पड़ेगा।

_____ _____

गवाह के हस्ताक्षर रोगी के हस्ताक्षर/अंगूठे का निशान

नाम: नाम:

_____

अन्वेषक के हस्ताक्षर

_____

विद्यार्थी के हस्ताक्षर

ਮਰੀਜ਼ ਰਜ਼ਾਮੰਦੀ ਫਾਰਮ

ਮਿਤੀ_____

ਮੈ_____ਪਤਨੀ/ਪੁੱਤਰ/ਪੁੱਤਰੀ_____

ਵਾਸੀ _____

"To determine the prevalence of periodontitis, bacterial vaginosis in women with pre-term labour and their correlation with c-reactive protein levels" ਤੇ ਚਲ ਰਹੀ ਖੋਜ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਲਈ ਰਜ਼ਾਮੰਦ ਹਾਂ। ਇਸ ਖੋਜ ਕੰਮ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਲਈ ਮੈ ਆਪਣੀ ਮਰਜ਼ੀ ਨਾਲ ਤਿਆਰ ਹਾਂ। ਮੈ ਇਹ ਦਸਣਾ ਚਾਹੁੰਦਾ ਹਾਂ/ ਚਾਹੁੰਦੀ ਹਾਂ ਕੇ ਇਹ ਰਜ਼ਾਮੰਦੀ ਦੇਣ ਵਾਸਤੇ ਮੈਨੂ ਕਿਸੇ ਵੀ ਤਰਾਂ ਦਾ ਲੋਭ-ਲਾਲਚ ਨਹੀ ਦਿੱਤਾ ਗਿਆ ਅਤੇ ਨਾ ਹੀ ਕੋਈ ਦਬਾ ਪਾਇਆ ਗਿਆ ਹੈ। ਮੈਨੂ ਇਸ ਖੋਜ ਦਾ ਮਨੋਰਥ ਸਮਝਾ ਦਿੱਤਾ ਗਿਆ ਹੈ ਅਤੇ ਮੈਨੂ ਇਹ ਭਰੋਸਾ ਦਵਾਇਆ ਗਿਆ ਹੈ ਕੇ ਇਹ ਖੋਜ ਵਿਗਿਆਨ ਅਤੇ ਮਾਨਵਤਾ ਦੀ ਭਲਾਈ ਲਈ ਹੈ। ਮੈਨੂ ਇਸ ਖੋਜ ਵਿਚ ਹੋਣ ਵਾਲੇ ਖਤਰੇ ਬਾਰੇ ਸਮਝਾ ਦਿੱਤਾ ਗਿਆ ਹੈ ਅਤੇ ਮੈਨੂ ਇਹ ਯਕੀਨ ਹੈ ਕੇ ਇਹ ਖਤਰਾ ਬਹੁਤ ਮਾਮੂਲੀ ਹੈ। ਮੈਨੂ ਇਸ ਖੋਜ ਕੰਮ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਦਾ ਢੰਗ – ਤਰੀਕਾ ਸਮਝਾ ਦਿੱਤਾ ਗਿਆ ਹੈ।

ਮੈ ਇਸ ਖੋਜ ਕੰਮ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਬਾਰੇ ਆਪਣੀ ਰਜ਼ਾਮੰਦੀ ਕਿਸੇ ਵੀ ਸਮੇ ਵਾਪਸ ਲੈ ਸਕਦਾ ਹਾਂ/ ਸਕਦੀ ਹਾਂ ਅਤੇ ਮੇਰੀ ਰਜ਼ਾਮੰਦੀ ਵਾਪਸ ਲੈਣ ਦਾ ਮੇਰੇ ਇਲਾਜ ਤੇ ਕੋਈ ਅਸਰ ਨਹੀ ਹੋਵੇਗਾ।

_____ _____

ਗਵਾਹ ਦੇ ਹਸਤਾਖਰ ਮਰੀਜ਼ ਦੇ ਹਸਤਾਖਰ

ਮਿਤੀ_____ ਮਿਤੀ_____

ਪਤਾ _____ ਪਤਾ _____

_____

ਨਿਰੀਖਕ ਦੇ ਹਸਤਾਖਰ

_____

ਸਿਖਿਆਰਥੀ ਦੇ ਹਸਤਾਖਰ